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(54) Title: NUCLEIC ACIDS, PROTEINS, AND ANTIBODIES

(57) Abstract: The present invention relates to novel ovarian related polynucleotides and the polypeptides encoded by these polynucleotides herein collectively known as "ovarian antigens", and the use of such ovarian antigens for detecting disorders of the ovaries and/or breast, particularly the presence of ovarian and/or breast cancer and ovarian and/or breast cancer metastases. More specifically, isolated ovarian associated nucleic acid molecules are provided encoding novel ovarian associated polypeptides. Novel ovarian polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human ovarian associated polynucleotides and/or polypeptides. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to the ovaries and/or breast, including ovarian and/or breast cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The present invention further relates to methods and/or compositions for inhibiting the production and function of the polypeptides of the present invention.

Nucleic Acids, Proteins, and Antibodies

[0001]   This application refers to a "Sequence Listing" that is provided on electronic media in computer readable form pursuant to Administrative Instructions Section 801(a)(i). The Sequence Listing forms a part of this description pursuant to Rule 5.2 and Administrative Instructions Sections 801 to 806, and is hereby incorporated in its entirety.

[0002]   The Sequence Listing is provided as an electronic file (PA133PCTSL.txt, 7,347,875 bytes in size, created on 07 June 2001) on four identical compact discs (CD-R), labeled "COPY 1," "COPY 2," "COPY 3," and "CRF." The Sequence Listing complies with Annex C of the Administrative Instructions, and may be viewed, for example, on an IBM-PC machine running the MS-Windows operating system by using the V viewer software, version 2000 (see World Wide Web URL: http://www.fileviewer.com).

Field of the Invention

[0003]   The present invention relates to novel ovarian related polynucleotides, the polypeptides encoded by these polynucleotides herein collectively referred to as "ovarian antigens," and antibodies that immunospecifically bind these polypeptides, and the use of such ovarian polynucleotides, antigens, and antibodies for detecting, treating, preventing and/or prognosing disorders of the reproductive system, particularly disorders of the ovaries and/or breast, including, but not limited to, the presence of ovarian and/or breast cancer and ovarian and/or breast cancer metastases. More specifically, isolated ovarian nucleic acid molecules are provided encoding novel ovarian polypeptides. Novel ovarian

nucleic acid molecules are provided encoding novel ovarian polypeptides. Novel ovarian polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human ovarian polynucleotides, polypeptides, and/or antibodies. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to the ovaries and/or breast, including ovarian and/or breast cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The invention further relates to methods and/or compositions for inhibiting or promoting the production and/or function of the polypeptides of the invention.

Background of the Invention

[0004]   The female reproductive system is comprised of both external and internal organs. The external organs function in permitting sperm to enter the body and protecting the internal genital organs from infection and injury. The internal organs form a pathway (the genital tract) for reproduction, beginning at the ovaries, through the fallopian tubes (oviducts) and uterus, to the birth canal (vagina).

[0005]   The sexual and reproductive functions in the female can be divided into two major phases: first, preparation of the body for conception, and second, the gestation and parturition. Gestation and parturition only occur if an ovum becomes fertilized. If fertilization does not occur, the reproductive system undergoes a cycle to ensure frequent readiness for conception and fertilization.

[0006]   The complexity of the female reproductive system renders it susceptible to several diseases and disorders. In particular, the ovaries and breast are subject to diseases and/or disorders such as infections, hyperproliferative disorders, as well as regulatory and genetic abnormalities.

Disorders of the Ovary

[0007]   A woman's ovaries are located on both sides of the uterus, below the opening of the fallopian tubes (tubes that extend from the uterus to the ovaries). In

addition to producing egg cells for reproduction, the ovaries produce estrogen and progesterone, which affect many of the female characteristics and reproductive functions.

[0008]   Anovulation (the absence of egg release by the ovaries) is a serious condition leading to infertility. The exact etiology of anovulation, especially in women with otherwise normal menstrual cycles, is unclear, however several potential causes are under study, including: impaired follicular development (probably due to low or absent estrogen production or binding), normal follicular development with lack of egg release (probably due to progesterone deficiency), or insufficient production of gonadotropin-releasing hormone from the hypothalamus. Current treatments include clomiphene injections or hormonal therapy, although both can lead to serious side effects such as ovarian cancer and ovarian hyperstimulation syndrome.

[0009]   Anovulation is also associated with polycyctic ovary syndrome (also known as Stein-Leventhal syndrome). This syndrome is and endocrine disorder characterized by an elevated level of male hormones (androgens). Other than anovulation, symptoms include growth of male-patterned body hair (hirsutism), excessive acne, irregular or absent menses, excessive bleeding, and obesity. Usually, the ovaries appear enlarged and may contain many follicular cysts.

[0010]   Ovarian cancer develops most often in women between the ages of 50 and 70. It is the third most common cancer of the female reproductive system, but more women die of ovarian cancers than of any other. Ovaries include a variety of cell types, each of which may give rise to a distinct type of cancer, including, but not limited to, ovarian epithelial cancer, ovarian germ cell tumors, ovarian papillary serous adenocarcinoma, ovarian mucinous adenocarcinoma, ovarian Krukenberg tumor, malignant mixed Mullerian tumors, and ovarian low malignant tumors.

[0011]   Other disorders of the ovaries also include, but are not limited to, inflammatory disorders, such as oophoritis (e.g., caused by viral or bacterial infection), ovarian cysts, and autoimmune disorders (e.g., premature ovarian failure and autoimmune oophoritis).

Disorders of the Breast

[0012]   The breast is comprised of different structures, each with its own specific function. One-third of the breast is comprised of fatty tissue. The other two-thirds is made

up of structural components called ducts and lobules. Milk is produced in the lobules and funneled through the ducts to the nipple. Disorders of the breast typically involve the formation of lesions within breast tissue. While many of these lesions are benign in nature, they may lead to cancer if left untreated.

[0013]	Benign breast lesions include, for example, cysts, which are non-cancerous, fluid-filled sacs that forma mass within breast tissue. The cause of breast cysts is unknown, though injury may be involved, and their main symptom is pain. While considered harmless, a professional should drain cysts and the fluid examined because cancer of the cyst wall, although quite rare, is possible.

[0014]	Other benign breast lesions include fibrous breast lumps (fibroadenomas), breast infection (mastitis), intraductal papilloma, and abscesses. Fibrous breast lumps are small, solid lumps of glandular tissue. These lumps usually appear in young women, often in teenagers, and are easy to remove. Intraductal papilloma are small lumps located within a milk duct, often causing inappropriate discharge from the nipple. Breast abscesses are collections of pus in breast tissue that develop from breast infections that go untreated.

[0015]	Breast cancer is the most common cancer among women, other than skin cancer and is the second leading cause of cancer death in women, after lung cancer. The American Cancer Society predicts that there will be about 182,800 new cases of invasive breast cancer in the year 2000 among women in this country and about 40,800 deaths from the disease. Breast cancer also occurs among men, although much less often. It is generally believed that this malignancy arises from a multi step process involving mutations in a relatively small number of genes, perhaps 10 or less. These mutations result in significant changes in the growth and differentiation of breast tissue that allow it to grow independent of normal cellular controls, to metastasize, and to escape immune surveillance. The genetic heterogeneity of most breast cancers suggests that they arise by a variety of initiating events and that the characteristics of individual cancers are due to the collective pattern of genetic changes that accumulate.

[0016]	The discovery of new human ovarian associated polynucleotides, the polypeptides encoded by them, and antibodies that immunospecifically bind these polypeptides, satisfies a need in the art by providing new compositions which are useful in

the diagnosis, treatment, prevention and/or prognosis of disorders of the ovaries and/or breast, including, but not limited to, neoplastic disorders (e.g., ovarian Krukenberg tumor, malignant mixed Mullerian tumors, and/or as described under "Hyperproliferative Disorders" below), infectious diseases (e.g., mastitis, oophoritis, and/or as described under "Infectious Diseases" below), and inflammatory diseases (e.g., abcesses and/or as described under "Immune Disorders" below) and as described in "Reproductive System Disorders" below.

Summary of the Invention

[0017]   The present invention relates to novel ovarian related polynucleotides, the polypeptides encoded by these polynucleotides herein collectively referred to as "ovarian antigens," and antibodies that immunospecifically bind these polypeptides, and the use of such ovarian polynucleotides, antigens, and antibodies for detecting, treating, preventing and/or prognosing disorders of the reproductive system, particularly disorders of the ovaries and/or breast, including, but not limited to, the presence of ovarian and/or breast cancer and ovarian and/or breast cancer metastases. More specifically, isolated ovarian nucleic acid molecules are provided encoding novel ovarian polypeptides. Novel ovarian polypeptides and antibodies that bind to these polypeptides are provided. Also provided are vectors, host cells, and recombinant and synthetic methods for producing human ovarian polynucleotides, polypeptides, and/or antibodies. The invention further relates to diagnostic and therapeutic methods useful for diagnosing, treating, preventing and/or prognosing disorders related to the ovaries and/or breast, including ovarian and/or breast cancer, and therapeutic methods for treating such disorders. The invention further relates to screening methods for identifying agonists and antagonists of polynucleotides and polypeptides of the invention. The invention further relates to methods and/or compositions for inhibiting or promoting the production and/or function of the polypeptides of the invention.

Detailed Description

<u>Tables</u>

[0018]   Table 1 summarizes some of the polynucleotides encompassed by the invention (including cDNA clones related to the sequences (Clone ID NO:Z), contig sequences (contig identifier (Contig ID:) and contig nucleotide sequence identifier (SEQ ID NO:X)) and further summarizes certain characteristics of these polynucleotides and the polypeptides encoded thereby. The first column provides a unique clone identifier, "Clone ID NO:Z", for a cDNA plasmid related to each ovarian associated contig sequence disclosed in Table 1. The second column provides a unique contig identifier, "Contig ID:" for each of the contig sequences disclosed in Table 1. The third column provides the sequence identifier, "SEQ ID NO:X", for each of the contig polynucleotide sequences disclosed in Table 1. The fourth column, "ORF (From-To)", provides the location (i.e., nucleotide position numbers) within the polynucleotide sequence of SEQ ID NO:X that delineate the preferred open reading frame (ORF) shown in the sequence listing and referenced in Table 1 as SEQ ID NO:Y (column 5). Column 6 lists residues comprising predicted epitopes contained in the polypeptides encoded by each of the preferred ORFs (SEQ ID NO:Y). Identification of potential immunogenic regions was performed according to the method of Jameson and Wolf (CABIOS, 4:181-186 (1988)); specifically, the Genetics Computer Group (GCG) implementation of this algorithm, embodied in the program PEPTIDESTRUCTURE (Wisconsin Package v10.0, Genetics Computer Group (GCG), Madison, Wisc.). This method returns a measure of the probability that a given residue is found on the surface of the protein. Regions where the antigenic index score is greater than 0.9 over at least 6 amino acids are indicated in Table 1 as "Predicted Epitopes." In particular embodiments, ovarian associated polypeptides of the invention comprise, or alternatively consist of, one, two, three, four, five or more of the predicted epitopes described in Table 1. It will be appreciated that depending on the analytical criteria used to predict antigenic determinants, the exact address of the determinant may vary slightly. Column 7, "Tissue Distribution" shows the expression profile of tissue, cells, and/or cell line libraries which express the polynucleotides of the invention. The first number in column 7 (preceding the colon), represents the tissue/cell source identifier

code corresponding to the code and description provided in Table 4. Expression of these polynucleotides was not observed in the other tissues and/or cell libraries tested. For those identifier codes in which the first two letters are not "AR", the second number in column 7 (following the colon), represents the number of times a sequence corresponding to the reference polynucleotide sequence (e.g., SEQ ID NO:X) was identified in the tissue/cell source. Those tissue/cell source identifier codes in which the first two letters are "AR" designate information generated using DNA array technology. Utilizing this technology, cDNAs were amplified by PCR and then transferred, in duplicate, onto the array. Gene expression was assayed through hybridization of first strand cDNA probes to the DNA array. cDNA probes were generated from total RNA extracted from a variety of different tissues and cell lines. Probe synthesis was performed in the presence of ^{33}P dCTP, using oligo(dT) to prime reverse transcription. After hybridization, high stringency washing conditions were employed to remove non-specific hybrids from the array. The remaining signal, emanating from each gene target, was measured using a Phosphorimager. Gene expression was reported as Phosphor Stimulating Luminescence (PSL) which reflects the level of phosphor signal generated from the probe hybridized to each of the gene targets represented on the array. A local background signal subtraction was performed before the total signal generated from each array was used to normalize gene expression between the different hybridizations. The value presented after "[array code]:" represents the mean of the duplicate values, following background subtraction and probe normalization. One of skill in the art could routinely use this information to identify normal and/or diseased tissue(s) which show a predominant expression pattern of the corresponding polynucleotide of the invention or to identify polynucleotides which show predominant and/or specific tissue and/or cell expression. Column 8, "Cytologic Band," provides the chromosomal location of polynucleotides corresponding to SEQ ID NO:X. Chromosomal location was determined by finding exact matches to EST and cDNA sequences contained in the NCBI (National Center for Biotechnology Information) UniGene database. Given a presumptive chromosomal location, disease locus association was determined by comparison with the Morbid Map, derived from Online Mendelian Inheritance in Man (Online Mendelian Inheritance in Man, OMIM™. McKusick-Nathans Institute for Genetic Medicine, Johns Hopkins University (Baltimore, MD) and National Center for Biotechnology Information, National Library of Medicine (Bethesda, MD) 2000. World

Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/). If the putative chromosomal location of the Query overlapped with the chromosomal location of a Morbid Map entry, an OMIM identification number is provided in column 9 labeled "OMIM Disease Reference(s)". A key to the OMIM reference identification numbers is provided in Table 5.

[0019]   Table 2 summarizes homology and features of some of the polypeptides of the invention. The first column provides a unique clone identifier, "Clone ID NO:Z", corresponding to a cDNA disclosed in Table 1. The second column provides the unique contig identifier, "Contig ID:" corresponding to contigs in Table 1 and allowing for correlation with the information in Table 1. The third column provides the sequence identifier, "SEQ ID NO:X", for the contig polynucleotide sequences. The fourth column provides the analysis method by which the homology/identity disclosed in the row was determined. Comparisons were made between polypeptides encoded by the polynucleotides of the invention and either a non-redundant protein database (herein referred to as "NR"), or a database of protein families (herein referred to as "PFAM") as further described below. The fifth column provides a description of PFAM/NR hits having significant matches to a polypeptide of the invention. Column six provides the accession number of the PFAM/NR hit disclosed in the fifth column. Column seven, "Score/Percent Identity", provides a quality score or the percent identity, of the hit disclosed in column five. Columns 8 and 9, "NT From" and "NT To" respectively, delineate the polynucleotides in "SEQ ID NO:X" that encode a polypeptide having a significant match to the PFAM/NR database as disclosed in the fifth column. In specific embodiments, polypeptides of the invention comprise, or alternatively consist of, an amino acid sequence encoded by the polynucleotides in SEQ ID NO:X as delineated in columns 8 and 9, or fragments or variants thereof.

[0020]   Table 3 provides polynucleotide sequences that may be disclaimed according to certain embodiments of the invention. The first column provides a unique clone identifier, "Clone ID NO:Z", for a cDNA clone related to ovarian associated contig sequences disclosed in Table 1. The second column provides the sequence identifier, "SEQ ID NO:X", for contig polynucleotide sequences disclosed in Table 1. The third column provides the unique contig identifier, "Contig ID", for contigs disclosed in Table 1. The fourth column provides a unique integer 'a' where 'a' is any integer between 1 and

the final nucleotide minus 15 of SEQ ID NO:X, represented as "Range of a", and the fifth column provides a unique integer 'b' where 'b' is any integer between 15 and the final nucleotide of SEQ ID NO:X, represented as "Range of b", where both a and b correspond to the positions of nucleotide residues shown in SEQ ID NO:X, and where b is greater than or equal to a + 14. For each of the polynucleotides shown as SEQ ID NO:X, the uniquely defined integers can be substituted into the general formula of a-b, and used to describe polynucleotides which may be preferably excluded from the invention. In certain embodiments, preferably excluded from the polynucleotides of the invention (including polynucleotide fragments and variants as described herein and diagnostic and/or therapeutic uses based on these polynucleotides) are at least one, two, three, four, five, ten, or more of the polynucleotide sequence(s) having the accession number(s) disclosed in the sixth column of this Table. In further embodiments, preferably excluded from the invention are the specific polynucleotide sequence(s) contained in the clones corresponding to at least one, two, three, four, five, ten, or more of the available material having the accession numbers identified in the sixth column of this Table.

[0021]   Table 4 provides a key to the tissue/cell source identifier code disclosed in Table 1, column 7. Column 1 provides the key to the tissue/cell source identifier code disclosed in Table 1, Column 7. Columns 2-5 provide a description of the tissue or cell source. Codes corresponding to diseased tissues are indicated in column 6 with the word "disease". The use of the word "disease" in column 6 is non-limiting. The tissue or cell source may be specific (e.g. a neoplasm), or may be disease-associated (e.g., a tissue sample from a normal portion of a diseased organ). Furthermore, tissues and/or cells lacking the "disease" designation may still be derived from sources directly or indirectly involved in a disease state or disorder, and therefore may have a further utility in that disease state or disorder. In numerous cases where the tissue/cell source is a library, column 7 identifies the vector used to generate the library.

[0022]   Table 5 provides a key to the OMIM™ reference identification numbers disclosed in Table 1, column 9. OMIM reference identification numbers (Column 1) were derived from Online Mendelian Inheritance in Man (Online Mendelian Inheritance in Man, OMIM™. McKusick-Nathans Institute for Genetic Medicine, Johns Hopkins University (Baltimore, MD) and National Center for Biotechnology Information, National Library of Medicine, (Bethesda, MD) 2000. World Wide Web URL:

http://www.ncbi.nlm.nih.gov/omim/). Column 2 provides diseases associated with the cytologic band disclosed in Table 1, column 8, as determined from the Morbid Map database.

[0023]   Table 6 summarizes ATCC Deposits, Deposit dates, and ATCC designation numbers of deposits made with the ATCC in connection with the present application.

[0024]   Table 7 shows the cDNA libraries sequenced, tissue source description, vector information and ATCC designation numbers relating to these cDNA libraries.

Definitions

[0025]   The following definitions are provided to facilitate understanding of certain terms used throughout this specification.

[0026]   In the present invention, "isolated" refers to material removed from its original environment (e.g., the natural environment if it is naturally occurring), and thus is altered "by the hand of man" from its natural state. For example, an isolated polynucleotide could be part of a vector or a composition of matter, or could be contained within a cell, and still be "isolated" because that vector, composition of matter, or particular cell is not the original environment of the polynucleotide. The term "isolated" does not refer to genomic or cDNA libraries, whole cell total or mRNA preparations, genomic DNA preparations (including those separated by electrophoresis and transferred onto blots), sheared whole cell genomic DNA preparations or other compositions where the art demonstrates no distinguishing features of the polynucleotide sequences of the present invention.

[0027]   As used herein, a "polynucleotide" refers to a molecule having a nucleic acid sequence encoding SEQ ID NO:Y or a fragment or variant thereof; a nucleic acid sequence contained in SEQ ID NO:X (as described in column 3 of Table 1) or the complement thereof; or a cDNA sequence contained in Clone ID NO:Z (as described in column 1 of Table 1 and contained within a library deposited with the ATCC). For example, the polynucleotide can contain the nucleotide sequence of the full length cDNA sequence, including the 5' and 3' untranslated sequences, the coding region, as well as fragments, epitopes, domains, and variants of the nucleic acid sequence. Moreover, as used herein, a "polypeptide" refers to a molecule having an amino acid sequence encoded by a polynucleotide of the invention as broadly defined (obviously excluding poly-

Phenylalanine or poly-Lysine peptide sequences which result from translation of a polyA tail of a sequence corresponding to a cDNA).

[0028]   As used herein, an "ovarian antigen" refers collectively to any polynucleotide disclosed herein (e.g., a nucleic acid sequence contained in SEQ ID NO:X or the complement therof, or cDNA sequence contained in Clone ID NO:Z, (e.g., a nucleic acid sequence contained in SEQ ID NO:X or the complement thereof, or cDNA sequence contained in Clone ID NO:Z, and fragments or variants thereof as described herein) or any polypeptide disclosed herein (e.g., an amino acid sequence contained in SEQ ID NO:Y, an amino acid sequence encoded by SEQ ID NO:X, or the complement thereof, an amino acid sequence encoded by the cDNA sequence contained in Clone ID NO:Z, and fragments or variants thereof as described herein). These ovarian antigens have been determined to be predominantly expressed in ovarian tissues, including normal or diseased tissues (as shown in Table 1 column 7 and Table 4).

[0029]   In the present invention, "SEQ ID NO:X" was often generated by overlapping-sequences contained in multiple clones (contig analysis). A representative clone containing all or most of the sequence for SEQ ID NO:X is deposited at Human Genome Sciences, Inc. (HGS) in a catalogued and archived library. As shown, for example, in column 1 of Table 1, each clone is identified by a cDNA Clone ID (identifier generally referred to herein as Clone ID NO:Z). Each Clone ID is unique to an individual clone and the Clone ID is all the information needed to retrieve a given clone from the HGS library. Furthermore, certain clones disclosed in this application have been deposited with the ATCC on June 5, 2000 and were given ATCC Deposit Nos. PTA-1982 and PTA-1985. In addition to the individual cDNA clone deposits, most of the cDNA libraries from which the clones were derived were deposited at the American Type Culture Collection (hereinafter "ATCC"). Table 7 provides a list of the deposited cDNA libraries. One can use the Clone ID NO:Z to determine the library source by reference to Tables 6 and 7. Table 7 lists the deposited cDNA libraries by name and links each library to an ATCC Deposit. Library names contain four characters, for example, "HTWE." The name of a cDNA clone (Clone ID NO:Z) isolated from that library begins with the same four characters, for example "HTWEP07". As mentioned below, Table 1 correlates the Clone ID NO:Z names with SEQ ID NO:X. Thus, starting with an SEQ ID NO:X, one can use Tables 1A, 6 and 7 to determine the corresponding Clone ID NO:Z, which library it came

from and which ATCC deposit the library is contained in. Furthermore, it is possible to retrieve a given cDNA clone from the source library by techniques known in the art and described elsewhere herein. The ATCC is located at 10801 University Boulevard, Manassas, Virginia 20110-2209, USA. The ATCC deposits were made pursuant to the terms of the Budapest Treaty on the international recognition of the deposit of microorganisms for the purposes of patent procedure.

[0030]   In specific embodiments, the polynucleotides of the invention are at least 15, at least 30, at least 50, at least 100, at least 125, at least 500, or at least 1000 continuous nucleotides but are less than or equal to 300 kb, 200 kb, 100 kb, 50 kb, 15 kb, 10 kb, 7.5 kb, 5 kb, 2.5 kb, 2.0 kb, or 1 kb, in length. In a further embodiment, polynucleotides of the invention comprise a portion of the coding sequences, as disclosed herein, but do not comprise all or a portion of any intron. In another embodiment, the polynucleotides comprising coding sequences do not contain coding sequences of a genomic flanking gene (i.e., 5' or 3' to the gene of interest in the genome). In other embodiments, the polynucleotides of the invention do not contain the coding sequence of more than 1000, 500, 250, 100, 50, 25, 20, 15, 10, 5, 4, 3, 2, or 1 genomic flanking gene(s).

[0031]   A "polynucleotide" of the present invention also includes those polynucleotides capable of hybridizing, under stringent hybridization conditions, to sequences contained in SEQ ID NO:X, or the complement thereof (e.g., the complement of any one, two, three, four, or more of the polynucleotide fragments described herein), the polynucleotide sequence delineated in columns 8 and 9 of Table 2 or the complement thereof, and/or cDNA sequences contained in Clone ID NO:Z (e.g., the complement of any one, two, three, four, or more of the polynucleotide fragments, ans/or the cDNA clone within the pool of cDNA clones deposited with the ATCC, described herein). "Stringent hybridization conditions" refers to an overnight incubation at 42 degree C in a solution comprising 50% formamide, 5x SSC (750 mM NaCl, 75 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5x Denhardt's solution, 10% dextran sulfate, and 20 µg/ml denatured, sheared salmon sperm DNA, followed by washing the filters in 0.1x SSC at about 65 degree C.

[0032]   Also contemplated are nucleic acid molecules that hybridize to the polynucleotides of the present invention at lower stringency hybridization conditions.

Changes in the stringency of hybridization and signal detection are primarily accomplished through the manipulation of formamide concentration (lower percentages of formamide result in lowered stringency), salt conditions, or temperature. For example, lower stringency conditions include an overnight incubation at 37 degree C in a solution comprising 6X SSPE (20X SSPE = 3M NaCl; 0.2M NaH$_2$PO$_4$; 0.02M EDTA, pH 7.4), 0.5% SDS, 30% formamide, 100 ug/ml salmon sperm blocking DNA; followed by washes at 50 degree C with 1XSSPE, 0.1% SDS. In addition, to achieve even lower stringency, washes performed following stringent hybridization can be done at higher salt concentrations (e.g. 5X SSC).

[0033]   Note that variations in the above conditions may be accomplished through the inclusion and/or substitution of alternate blocking reagents used to suppress background in hybridization experiments. Typical blocking reagents include Denhardt's reagent, BLOTTO, heparin, denatured salmon sperm DNA, and commercially available proprietary formulations. The inclusion of specific blocking reagents may require modification-of the hybridization-conditions-described above, due to problems with compatibility.

[0034]   Of course, a polynucleotide which hybridizes only to polyA+ sequences (such as any 3' terminal polyA+ tract of a cDNA shown in the sequence listing), or to a complementary stretch of T (or U) residues, would not be included in the definition of "polynucleotide," since such a polynucleotide would hybridize to any nucleic acid molecule containing a poly (A) stretch or the complement thereof (e.g., practically any double-stranded cDNA clone generated using oligo dT as a primer).

[0035]   The polynucleotide of the present invention can be composed of any polyribonucleotide or polydeoxribonucleotide, which may be unmodified RNA or DNA or modified RNA or DNA. For example, polynucleotides can be composed of single- and double-stranded DNA, DNA that is a mixture of single- and double-stranded regions, single- and double-stranded RNA, and RNA that is mixture of single- and double-stranded regions, hybrid molecules comprising DNA and RNA that may be single-stranded or, more typically, double-stranded or a mixture of single- and double-stranded regions. In addition, the polynucleotide can be composed of triple-stranded regions comprising RNA or DNA or both RNA and DNA. A polynucleotide may also contain one or more modified bases or DNA or RNA backbones modified for stability or for other reasons.

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"Modified" bases include, for example, tritylated bases and unusual bases such as inosine. A variety of modifications can be made to DNA and RNA; thus, "polynucleotide" embraces chemically, enzymatically, or metabolically modified forms.

[0036]   The polypeptide of the present invention can be composed of amino acids joined to each other by peptide bonds or modified peptide bonds, i.e., peptide isosteres, and may contain amino acids other than the 20 gene-encoded amino acids. The polypeptides may be modified by either natural processes, such as posttranslational processing, or by chemical modification techniques which are well known in the art. Such modifications are well described in basic texts and in more detailed monographs, as well as in a voluminous research literature. Modifications can occur anywhere in a polypeptide, including the peptide backbone, the amino acid side-chains and the amino or carboxyl termini. It will be appreciated that the same type of modification may be present in the same or varying degrees at several sites in a given polypeptide. Also, a given polypeptide may contain many types of modifications. Polypeptides may be branched, for -example, as a result of ubiquitination, and they may be cyclic, with or without branching. Cyclic, branched, and branched cyclic polypeptides may result from posttranslation natural processes or may be made by synthetic methods. Modifications include acetylation, acylation, ADP-ribosylation, amidation, covalent attachment of flavin, covalent attachment of a heme moiety, covalent attachment of a nucleotide or nucleotide derivative, covalent attachment of a lipid or lipid derivative, covalent attachment of phosphotidylinositol, cross-linking, cyclization, disulfide bond formation, demethylation, formation of covalent cross-links, formation of cysteine, formation of pyroglutamate, formylation, gamma-carboxylation, glycosylation, GPI anchor formation, hydroxylation, iodination, methylation, myristoylation, oxidation, pegylation, proteolytic processing, phosphorylation, prenylation, racemization, selenoylation, sulfation, transfer-RNA mediated addition of amino acids to proteins such as arginylation, and ubiquitination. (See, for instance, PROTEINS - STRUCTURE AND MOLECULAR PROPERTIES, 2nd Ed., T. E. Creighton, W. H. Freeman and Company, New York (1993); POSTTRANSLATIONAL COVALENT MODIFICATION OF PROTEINS, B. C. Johnson, Ed., Academic Press, New York, pgs. 1-12 (1983); Seifter et al., Meth. Enzymol. 182:626-646 (1990); Rattan et al., Ann. N.Y. Acad. Sci. 663:48-62 (1992).)

[0037]   "SEQ ID NO:X" refers to a polynucleotide sequence described, for example, in Tables 1A or 2, while "SEQ ID NO:Y" refers to a polypeptide sequence described in column 5 of Table 1. SEQ ID NO:X is identified by an integer specified in column 3 of Table 1. The polypeptide sequence SEQ ID NO:Y is a translated open reading frame (ORF) encoded by polynucleotide SEQ ID NO:X. "Clone ID NO:Z" refers to a cDNA clone described in column 1 of Table 1.

[0038]   "A polypeptide having biological activity" refers to a polypeptide exhibiting activity similar to, but not necessarily identical to, an activity of a polypeptide of the present invention, including mature forms, as measured in a particular biological assay, with or without dose dependency. In the case where dose dependency does exist, it need not be identical to that of the polypeptide, but rather substantially similar to the dose-dependence in a given activity as compared to the polypeptide of the present invention (i.e., the candidate polypeptide will exhibit greater activity or not more than about 25-fold less and, preferably, not more than about tenfold less activity, and most preferably, not more than about three-fold less activity relative to the polypeptide of the present invention).

[0039]   Table 1 summarizes some of the polynucleotides encompassed by the invention (including contig sequences (SEQ ID NO:X) and clones (Clone ID NO:Z) and further summarizes certain characteristics of these polynucleotides and the polypeptides encoded thereby.

Polynucleotides and Polypeptides

TABLE 1

Clone ID NO: Z	Contig ID:	SEQ ID NO: X	ORF (From-To)	AA SEQ ID NO: Y	Predicted Epitopes	Tissue Distribution Library code: count (see Table IV for Library Codes)	Cytologic Band	OMIM Disease Reference(s):
HOVCD34	396327	11	158 - 328	2186		H0428: 2		
HEBGD58	498281	12	3 - 107	2187	His-1 to Gly-19, Gly-29 to Tyr-35.	L0744: 5, L0758: 5, L0766: 4, L0803: 4, L0439: 4, L0759: 4, H0657: 3, H0341: 3, L0794: 3, H0648: 3, L0747: 3, L0752: 3, S0422: 2, L0598: 2, L0770: 2, L0809: 2, H0696: 2, L0742: 2, L0755: 2, H0716: 1, S0116: 1, H0638: 1, S0444: 1, S0360: 1, H0637: 1, H0580: 1, S0007: 1, L0586: 1, H0156: 1, H0599: 1, L0022: 1, H0042: 1, H0318: 1, H0327: 1, H0328: 1, H0615: 1, L0483: 1, S0112: 1, T0042: 1, H0560: 1, H0625: 1, L0769: 1, L0800: 1, L0764: 1, L0804: 1, L0375: 1,		

					Amino acid ranges	Library / clone counts		Cytogenetic	OMIM
HETCD42	533532	13	18 - 947	2188	Glu-29 to Lys-37, Lys-110 to Ile-118, Arg-126 to Cys-135, Lys-157 to Gly-163, Gln-188 to Trp-201, Glu-269 to Thr-278.	H0013: 8, L0731: 8, L0471: 6, S0003: 6, H0547: 6, L0439: 6, L0740: 6, H0046: 5, H0144: 5, H0171: 4, H0494: 4, L0766: 4, L0775: 4, L0666: 4, H0521: 4, L0754: 4, L0588: 4, L0600: 4, H0624: 3, H0657: 3, H0575: 3, H0591: 3, H0551: 3, H0529: 3, S0126: 3, H0696: 3, L0745: 3, S0040: 2, H0295: 2, S0116: 2, H0638: 2, S0356: 2, S0376: 2, S0278: 2,	L0805: 1, L0776: 1, L0791: 1, L0792: 1, L4501: 1, L0666: 1, L0663: 1, H0144: 1, L0352: 1, H0547: 1, H0519: 1, H0659: 1, H0660: 1, S0152: 1, H0521: 1, H0522: 1, S0028: 1, L0749: 1, L0756: 1, L0753: 1, L0757: 1, H0445: 1, L0588: 1, L0592: 1 and S0192: 1.	7q31.2-q31.3	150240, 164160, 180105, 190900, 222800, 246900, 602421, 602421, 602421

H0156: 2, H0036: 2,
H0266: 2, H0179: 2,
H0328: 2, H0615: 2,
H0039: 2, H0622: 2,
H0031: 2, H0090: 2,
H0412: 2, H0623: 2,
H0560: 2, H0625: 2,
S0422: 2, L0770: 2,
L0662: 2, L0768: 2,
L0649: 2, L0803: 2,
H0684: 2, S0152: 2,
S0028: 2, S0206: 2,
L0752: 2, L0757: 2,
L0759: 2, S0031: 2,
S0434: 2, L0362: 2,
S0026: 2, S0196: 2,
H0170: 1, H0556: 1,
S0342: 1, S0134: 1,
S0212: 1, H0661: 1,
S0418: 1, S0420: 1,
S0354: 1, S0358: 1,
S0444: 1, H0580: 1,
S0045: 1, S0132: 1,
H0393: 1, L0717: 1,
S0222: 1, H0614: 1,
H0357: 1, H0587: 1,
H0632: 1, H0270: 1,
T0114: 1, H0250: 1,
S0280: 1, S0474: 1,
H0581: 1, H0374: 1,

H0052: 1, H0232: 1,
H0050: 1, H0024: 1,
H0014: 1, H0373: 1,
H0051: 1, S0051: 1,
H0355: 1, H0375: 1,
H0594: 1, S0214: 1,
L0483: 1, H0553: 1,
H0644: 1, H0032: 1,
H0212: 1, S0036: 1,
H0038: 1, H0264: 1,
H0413: 1, H0056: 1,
T0042: 1, S0466: 1,
H0509: 1, H0207: 1,
H0641: 1, H0647: 1,
S0344: 1, L0638: 1,
L0637: 1, L0794: 1,
L0804: 1, L0805: 1,
L0656: 1, L0635: 1,
L0528: 1, L0664: 1,
L0665: 1, H0520: 1,
H0519: 1, H0593: 1,
H0435: 1, H0659: 1,
H0670: 1, H0672: 1,
H0651: 1, S0328: 1,
S0330: 1, L0602: 1,
H0518: 1, S0176: 1,
H0555: 1, S0390: 1,
L0750: 1, S0260: 1,
H0595: 1, L0599: 1,
L0608: 1, H0668: 1,

Gene					Amino acid regions	Expression / Library counts	Chromosome	Numbers
HTXKC18	535854	14	387 - 115	2189	Ser-57 to Gly-65, Gly-80 to His-86.	H0653: 1, S0192: 1, H0543: 1 and : 1. AR039: 65, AR096: 37, AR104: 37, AR089: 32, AR053: 27, AR052: 25, AR033: 22, AR060: 21, AR055: 21, AR061: 11		
HLDRK20	553765	15	48 - 1214	2190	Thr-8 to Thr-19, Arg-108 to Ser-115, Ser-117 to Arg-128, Phe-143 to Tyr-155, Leu-171 to Arg-177, Asn-182 to Gly-187, Gly-195 to Ser-200, Arg-232 to Thr-248, Pro-287 to Arg-293.	H0556: 1 L0665: 45, L0581: 42, H0509: 32, H0393: 15, H0574: 15, H0510: 15, L0362: 14, L0666: 11, H0658: 10, L0748: 10, H0014: 9, S0410: 8, H0331: 8, H0674: 8, S0438: 8, L0657: 8, H0689: 8, H0039: 7, L0659: 7, H0670: 7, S0044: 7, H0663: 6, H0622: 5, H0641: 5, S0360: 4, H0046: 4, H0246: 4, H0355: 4, H0169: 4, H0648: 4, L0749: 4, S0318: 3, L0662: 3, L0768: 3, L0775: 3, L0664: 3, H0682: 3, L0751: 3, H0506: 3, S0132: 2, H0441: 2, H0632: 2,	6p21.3	106300, 108800, 120290, 120290, 120810, 120820, 142857, 142858, 150270, 167250, 170261, 177900, 179450, 201910, 217000, 222100, 233100, 235200, 248611, 256550, 256550,

H2MBD33	558474	16	138 - 290	2191	Ser-13 to Asp-18.	S0434: 2, L0601: 2, H0624: 1, L0615: 1, H0662: 1, S0356: 1, L0717: 1, H0549: 1, H0431: 1, H0586: 1, H0643: 1, H0575: 1, H0569: 1, H0057: 1, H0015: 1, H0687: 1, S0003: 1, S0214: 1, H0688: 1, H0553: 1, H0124: 1, H0059: 1, L0564: 1, L0065: 1, S0440: 1, L0638: 1, L0646: 1, L0764: 1, L0771: 1, L0386: 1, L0375: 1, L0525: 1, L0378: 1, L0776: 1, L0634: 1, L0544: 1, H0144: 1, S0374: 1, H0693: 1, S0310: 1, H0593: 1, S0126: 1, H0690: 1, H0684: 1, H0435: 1, H0660: 1, H0666: 1, S0328: 1, H0521: 1, S0406: 1, H0555: 1, S0027: 1, L0750: 1, L0755: 1, S0031: 1, S0192: 1, S0276: 1 and S0196: 1. L0666: 2, L0394: 1,	600202, 600261, 601868, 602280, 602475

HSYBX61	558708	17	3 - 515	Arg-13 to Ala-20, Pro-27 to Arg-32, Lys-37 to Glu-62.	T0109: 1, H0428: 1, H0264: 1, L0764: 1, L0665: 1 and H0648: 1.	18q12.1	176300, 176300, 176300, 176300
HELHC03	562745	18	623 - 1018	Pro-105 to Trp-117.	H0428: 2, L0757: 2, H0170: 1, S0007: 1, H0028: 1, S0250: 1, H0252: 1, H0328: 1, H0124: 1, H0551: 1, L0439: 1 and L0750: 1. AR089: 5, AR096: 4, AR060: 3, AR104: 3, AR061: 2, AR055: 2, AR033: 1, AR053: 1, AR039: 0 H0615: 2, H0346: 1, S0045: 1, H0156: 1, H0659: 1, L0748: 1 and H0444: 1.		
HOFMP70	585385	19	99 - 347		H0415: 3	12q24.2-q24.3	100650, 100650, 142410, 142410, 142410, 160781, 181405
HSKNZ25	585675	20	357 - 641	Gly-1 to Ala-9, Pro-42 to Ser-56, Leu-60 to Gly-67, Ala-86 to Asp-95.	S3012: 1		
HDPFK39	588869	21	1 - 720	Pro-14 to Ser-19,	H0521: 4, H0415: 1	16p11.2	147781,

| HL1AB07 | 638220 | 22 | 2 - 514 | 2197 | Asn-18 to Arg-24, Arg-30 to Tyr-35, Glu-43 to Asp-51, Glu-56 to Gly-66, Leu-101 to Lys-107, Ala-156 to His-171. | Glu-55 to Phe-60, Asp-93 to Ser-98, Thr-138 to Tyr-144, Asn-155 to Phe-163, Arg-168 to Ser-175, Gln-205 to Lys-210, Phe-226 to Thr-233. | L0747: 15, L0742: 12, L0748: 12, L0752: 12, L0757: 9, L0731: 8, L0754: 7, S0144: 6, L0755: 6, S0356: 5, S0406: 5, L0740: 5, H0046: 4, L0764: 4, H0543: 4, H0250: 3, H0040: 3, L0761: 3, L0646: 3, L0774: 3, L0806: 3, L0751: 3, L0745: 3, L0753: 3, L0759: 3, S0212: 2, H0661: 2, S0360: 2, S0280: 2, H0014: 2, H0039: 2, S0036: 2, H0163: 2, L0768: 2, L0775: 2, L0776: 2, L0379: 2, L0783: 2, L0809: 2, H0702: 2, L0689: 2, S0126: 2, H0658: 2, H0672: 2, L0439: 2, L0750: 2, and H0522: 1. | 7q36 | 172471, 182381 | 142335, 152427, 163729, 176450, 190605, 600510, 600725 |

| L0756: 2, L0758: 2, |
| L0605: 2, L0590: 2, |
| S0011: 2, H0171: 1, |
| H0556: 1, T0002: 1, |
| S0040: 1, S0134: 1, |
| S0218: 1, H0657: 1, |
| H0341: 1, H0484: 1, |
| H0306: 1, H0305: 1, |
| H0125: 1, S0442: 1, |
| S0358: 1, S0132: 1, |
| H0351: 1, H0586: 1, |
| H0574: 1, H0486: 1, |
| H0013: 1, H0635: 1, |
| H0575: 1, H0318: 1, |
| H0052: 1, H0597: 1, |
| H0041: 1, H0050: 1, |
| L0163: 1, S0388: 1, |
| S0051: 1, H0356: 1, |
| H0266: 1, H0687: 1, |
| S0312: 1, S0003: 1, |
| H0252: 1, T0006: 1, |
| L0142: 1, H0313: 1, |
| L0055: 1, H0032: 1, |
| H0169: 1, H0038: 1, |
| T0041: 1, S0306: 1, |
| S0438: 1, H0130: 1, |
| H0641: 1, H0647: 1, |
| S0344: 1, S0210: 1, |
| L0763: 1, L0770: 1, |
| L0769: 1, L0372: 1, |

HHGAS83	654868	23	115 - 393	2198	L0642: 1, L0645: 1, L0771: 1, L0648: 1, L0662: 1, L0364: 1, L0375: 1, L0655: 1, L0807: 1, L0657: 1, L0659: 1, L0532: 1, L0666: 1, L0664: 1, L0665: 1, H0144: 1, H0701: 1, H0711: 1, S0380: 1, H0521: 1, S0404: 1, S0206: 1, L0749: 1, L0777: 1, H0445: 1, L0599: 1, S0276: 1, H0423: 1 and H0506: 1.	
					L0744: 11, S0007: 10, H0617: 10, L0747: 9, H0673: 8, H0597: 6, L0809: 6, H0683: 6, L0748: 6, L0754: 6, L0731: 6, L0622: 5, L0542: 5, L0755: 5, H0306: 4, H0402: 4, H0150: 4, H0188: 4, L0775: 4, L0751: 4, H0170: 3, H0255: 3, S0278: 3, T0006: 3, H0674: 3, L0774: 3, L0740: 3, L0745: 3, H0352: 3, H0657: 2,	17

L0785: 2, H0661: 2,
S0376: 2, S0360: 2,
H0637: 2, H0333: 2,
H0486: 2, H0309: 2,
H0545: 2, H0123: 2,
H0594: 2, H0032: 2,
H0169: 2, S0142: 2,
L0767: 2, L0776: 2,
L0655: 2, L0529: 2,
L0530: 2, L0666: 2,
L0663: 2, L0664: 2,
H0682: 2, L0750: 2,
L0753: 2, L0757: 2,
L0759: 2, L0588: 2,
L0361: 2, S0114: 1,
T0049: 1, S0134: 1,
H0254: 1, S0358: 1,
H0580: 1, H0339: 1,
S0046: 1, S0140: 1,
S6026: 1, S0300: 1,
S6022: 1, H0441: 1,
H0455: 1, H0643: 1,
T0060: 1, L0021: 1,
H0042: 1, H0618: 1,
H0253: 1, N0011: 1,
S0049: 1, H0327: 1,
H0530: 1, H0546: 1,
H0086: 1, H0009: 1,
H0081: 1, H0050: 1,
H0620: 1, H0024: 1,

H0057: 1, H0373: 1,	
S0051: 1, H0071: 1,	
H0687: 1, S0003: 1,	
S0214: 1, H0417: 1,	
H0031: 1, H0553: 1,	
H0111: 1, H0181: 1,	
H0606: 1, H0038: 1,	
H0616: 1, H0063: 1,	
H0087: 1, H0412: 1,	
H0059: 1, T0069: 1,	
T0004: 1, L0564: 1,	
S0440: 1, S0144: 1,	
S0344: 1, S0208: 1,	
L0598: 1, L0520: 1,	
L0763: 1, L0371: 1,	
L0770: 1, L0667: 1,	
L0764: 1, L0765: 1,	
L0771: 1, L0662: 1,	
L0375: 1, L0376: 1,	
L0378: 1, L0806: 1,	
L0658: 1, L0659: 1,	
L0518: 1, L0783: 1,	
L0788: 1, S0053: 1,	
H0691: 1, H0519: 1,	
S0126: 1, H0689: 1,	
H0660: 1, S0330: 1,	
H0696: 1, S0404: 1,	
H0576: 1, S3014: 1,	
S0206: 1, L0742: 1,	
L0743: 1, L0749: 1,	

HTSGU37	24	3 - 515	2199	Ile-1 to Thr-10, Pro-66 to Gly-77, Asp-85 to Gly-116.	AR089: 6, AR060: 7, AR096: 5, AR104: 3, AR055: 3, AR061: 2, L0746: 2, H0592: 1, H0087: 1, L4501: 1, L0665: 1 and L0758: 1. L0752: 1, H0445: 1, L0589: 1, L0592: 1, L0608: 1, H0422: 1, H0008: 1 and H0293: 1.	1p33-p32	120260, 120950, 120960, 138140, 178300, 187040, 246450, 600101, 600650, 600650, 600722, 600722
H2LAN34	25	2 - 211	2200		T0115: 1, L0662: 1, L0766: 1, L0659: 1, L0809: 1, L0748: 1 and H0444: 1.		
HPMBZ40	26	402 - 590	2201	Gly-13 to Val-36.		2	
HLYEP52	27	2 - 721	2202			16p13.3	141750, 141800, 141800, 141800, 141800, 141850, 141850, 141850, 141850,

HTTEC47	745343	28	329 - 433	2203		AR096: 3, AR053: 2, AR060: 2, AR089: 2, AR033: 1, AR061: 1, AR055: 1, AR104: 0, AR039: 0 L0766: 2, S0354: 1, H0135: 1 and H0040: 1.		141850, 156850, 186580, 191092, 600140, 600273, 601313, 601785
HOFMO90	746416	29	113 - 391	2204	Arg-6 to Leu-12, Tyr-18 to Asp-25.		6p21.3	106300, 108800, 120290, 120290, 120810, 120820, 142857, 142858, 150270, 167250, 170261, 177900, 179450, 201910, 217000,

							222100, 233100, 235200, 248611, 256550, 256550, 600202, 600261, 601868, 602280, 602475
HCHND34	762806	30	99 - 164	2205	AR055: 937, AR033: 824, AR061: 791, AR104: 733, AR060: 647, AR053: 378, AR089: 278, AR039: 203, AR096: 149 H0484: 1	17p13.3	113721, 247200, 600059, 601545
HAMGI86	785328	31	388 - 609	2206	L0740: 2, S0356: 1, H0040: 1, H0616: 1 and H0560: 1.	3q23	106165, 110100, 117700, 117700, 150210, 169600, 180380, 180380, 180380, 203500, 276902, 601199,

| HLWCN67 | 794213 | 32 | 326 - 691 | 2207 | Tyr-1 to Trp-9,
Thr-44 to Leu-49. | L0766: 7, L0794: 6,
L0758: 6, L0665: 4,
L0439: 4, L0779: 4,
H0590: 3, H0328: 3,
L0598: 3, L0763: 3,
L0666: 3, H0648: 3,
L0754: 3, L0362: 3,
H0506: 3, H0657: 2,
H0661: 2, S0438: 2,
L0646: 2, L0803: 2,
L0375: 2, L0806: 2,
L0809: 2, L0438: 2,
L0744: 2, L0740: 2,
L0747: 2, L0756: 2,
L0731: 2, S0434: 2,
L0589: 2, H0713: 1,
S0114: 1, H0583: 1,
H0255: 1, H0669: 1,
H0663: 1, S0222: 1,
H0497: 1, L0021: 1,
L0022: 1, H0036: 1,
H0052: 1, L0163: 1,
H0239: 1, H0179: 1,
H0615: 1, H0092: 1,
H0553: 1, H0163: 1,
H0038: 1, H0100: 1,
S0440: 1, S0422: 1, | 601199,
601199,
601682 |

ID				SEQ ID	#	Sequence features	Residue data
					12		H0415: 3 and H0414: 2.
HOFAC09	806819	33	866 - 3	2208			S0426: 1, UNKWN: 1, L5575: 1, L0644: 1, L0764: 1, L0662: 1, L0651: 1, L0653: 1, L0655: 1, L0661: 1, L0657: 1, L0526: 1, L0783: 1, L0793: 1, L0664: 1, S0374: 1, H0682: 1, H0658: 1, S0328: 1, H0539: 1, S0454: 1, S0406: 1, S0028: 1, L0750: 1, L0752: 1, L0759: 1, S0260: 1, H0445: 1, L0596: 1 and L0597: 1.
HRDEL61	824886	34	630 - 824	2209	1	Lys-1 to Trp-7, Pro-29 to His-41, Thr-48 to Arg-65.	H0124: 1
HDPOR60	828176	35	2 - 1924	2210		Gln-35 to Ser-43, Thr-52 to Cys-57, Glu-70 to Lys-79, Trp-121 to Lys-126, Ser-152 to Ser-162, Ser-183 to Phe-191, Val-206 to Thr-213, Ile-217 to Asn-222, Arg-237 to Lys-246, Thr-279 to Cys-285,	AR052: 3, AR089: 2, AR039: 2, AR055: 2, AR033: 2, AR053: 2, AR060: 2, AR096: 1, AR061: 1, AR104: 1, H0651: 8, L0744: 7, L0748: 6, H0620: 4, S0360: 3, S0142: 3, L0755: 3, H0638: 2, H0052: 2, H0123: 2,

His-336 to Leu-341,	H0083: 2, H0328: 2,
Pro-380 to Phe-387,	H0615: 2, H0039: 2,
Gln-405 to Asp-410,	H0424: 2, H0163: 2,
Thr-581 to Asp-595.	H0040: 2, H0059: 2,
	L0659: 2, L0519: 2,
	L0438: 2, S0378: 2,
	S3012: 2, S3014: 2,
	L0743: 2, L0750: 2,
	L0758: 2, L0589: 2,
	H0656: 1, H0662: 1,
	S0420: 1, S0358: 1,
	S0408: 1, H0637: 1,
	S0222: 1, H0574: 1,
	S0280: 1, L0021: 1,
	H0544: 1, H0546: 1,
	H0545: 1, H0081: 1,
	H0012: 1, H0266: 1,
	H0188: 1, H0687: 1,
	H0288: 1, H0292: 1,
	H0252: 1, H0673: 1,
	H0100: 1, H0641: 1,
	S0144: 1, S0002: 1,
	L0761: 1, L0643: 1,
	L0662: 1, L0650: 1,
	L0774: 1, L0375: 1,
	L0805: 1, L0776: 1,
	L0783: 1, L0793: 1,
	L0665: 1, S0053: 1,
	H0520: 1, H0658: 1,
	H0672: 1, H0522: 1,

						S0406: 1, H0436: 1, S0037: 1, L0747: 1, L0749: 1, L0779: 1, L0731: 1, S0031: 1 and S0434: 1.		
HPRTS71	828574	36	3 - 458	2211	Pro-117 to Lys-134, Gln-136 to Trp-143.	L0748: 3, H0486: 2, L0599: 2, S0212: 1, S0358: 1, H0596: 1, H0032: 1, H0212: 1, S0002: 1, L0769: 1, L0775: 1, L0527: 1, L0519: 1, S0122: 1, L0754: 1 and L0750: 1.		
HOHBI90	828862	37	1 - 417	2212	Pro-1 to Pro-9, Arg-81 to Glu-87, Gln-114 to Glu-119.	S0250: 2, H0435: 2, S0152: 1 and L0745: 1.	19q13.1	164731, 172400, 172400, 180901, 180901, 221770, 248600, 600918, 602716
HOHAL47	828872	38	295 - 879	2213	Gly-17 to Leu-40, Ala-47 to Phe-63, Glu-66 to Val-71, Ile-75 to His-92, Glu-112 to Asn-119, Asp-122 to Arg-135, Asn-140 to Phe-152, Asn-160 to Arg-166.	L0741: 3, H0069: 1, S0250: 1, H0032: 1, H0212: 1, L0774: 1, H0522: 1 and L0756: 1.	8p22-p21.3	148370, 238600, 238600, 238600, 238600, 600143, 601385, 602629

HYASE58	829298	39	2 - 694	2214	Phe-4 to Gln-10.	AR061: 13, AR089: 5, AR096: 5, AR033: 4, AR060: 4, AR052: 3, AR053: 3, AR055: 3, AR104: 3, AR039: 2 H0617: 11, L0748: 5, L0731: 4, H0181: 3, L0775: 3, H0670: 3, L0749: 3, H0656: 2, H0550: 2, H0083: 2, H0087: 2, H0658: 2, H0539: 2, L0747: 2, L0750: 2, H0341: 1, H0661: 1, H0402: 1, S0418: 1, S0360: 1, S0045: 1, H0393: 1, H0587: 1, H0333: 1, H0544: 1, H0009: 1, H0510: 1, H0688: 1, H0644: 1, H0606: 1, H0708: 1, S0366: 1, H0131: 1, L0770: 1, L0540: 1, L0783: 1, L0809: 1, L0789: 1, L0666: 1, L0665: 1, H0689: 1, H0682: 1, H0672: 1, L0743: 1, L0779: 1, L0759: 1, S0434: 1 and S0460: 1.
HKAAH95	829958	40	2 - 418	2215	Arg-13 to Trp-31,	L0766: 7, L0731: 5,

Val-61 to Asn-67, Lys-87 to Arg-92, Leu-97 to Asp-109, Ser-129 to Asp-139.	H0542: 5, H0494: 3, L0526: 3, L0750: 3, L0752: 3, L0757: 3, L0588: 3, H0686: 2, T0049: 2, H0657: 2, H0341: 2, S0358: 2, T0008: 2, S0046: 2, L0471: 2, H0169: 2, L0763: 2, L0774: 2, H0519: 2, S0126: 2, S0027: 2, L0590: 2, H0423: 2, H0685: 1, H0650: 1, H0662: 1, H0504: 1, S0376: 1, S0360: 1, H0580: 1, H0431: 1, T0109: 1, H0069: 1, H0098: 1, T0048: 1, S0182: 1, H0023: 1, H0014: 1, H0617: 1, H0413: 1, H0129: 1, H0625: 1, H0132: 1, S0150: 1, H0130: 1, H0633: 1, L0520: 1, L0764: 1, L0648: 1, L0662: 1, L0775: 1, L0806: 1, L0379: 1, L0517: 1, L0540: 1, L0383: 1, L0809: 1, L0519: 1, H0520: 1, H0659: 1,

HTTIQ02	829981	41	2 - 391	2216	Ala-96 to Lys-111, Cys-117 to Cys-128.		H0658: 1, H0666: 1, S0328: 1, S0380: 1, S0032: 1, L0779: 1, L0758: 1, L0759: 1 and H0445: 1.	
HWACG91	830195	42	80 - 631	2217	Ser-2 to Arg-14, Ala-37 to Lys-45, Glu-60 to Leu-68, His-75 to Glu-82, Arg-92 to Ser-99, Gly-105 to Gln-110, Arg-119 to Phe-125.	6p12	H0581: 1 and H0521: 1.	180297, 230450, 263200, 601690
HUFBX52	830497	43	2 - 1531	2218	Thr-1 to Leu-9, Ser-46 to Leu-56, Glu-117 to Lys-124, Pro-129 to Asp-135, Ala-144 to Gln-150, Gly-156 to Lys-162, Phe-182 to Pro-187, Pro-196 to Gln-201, Lys-217 to Asp-227.		H0124: 8, H0550: 5, H0428: 3, H0586: 2, H0575: 2, H0555: 2, H0294: 1, S0282: 1, H0427: 1, H0196: 1, H0052: 1, H0194: 1, H0086: 1, H0123: 1, H0509: 1, H0684: 1, L0748: 1, L0747: 1, L0756: 1, S0192: 1 and H0506: 1.	
HWLJE49	831453	44	1 - 315	2219	Tyr-34 to His-42, Leu-44 to Leu-49.	1p36	S0358: 1, S0376: 1 and H0413: 1.	118210, 120550, 120570, 120575, 121800,

HLQBT44	832454	45	590 - 393	2220				130500, 133200, 155600, 171760, 171760, 185470, 211420, 230350, 255800, 601990, 602023, 602771
HSLGG58	833088	46	92 - 1450	2221	Ala-23 to Asp-41. Gln-102 to Arg-109, Gly-177 to Pro-183, Pro-315 to Asn-323, Ser-361 to Cys-369, Ala-381 to Ser-391, Ser-419 to Ser-428.	AR061: 141, AR104: 122, AR055: 119, AR060: 115, AR052: 82, AR033: 78, AR039: 72, AR089: 67, AR053: 38, AR096: 32 L0759: 4, H0617: 3, L0749: 3, L0779: 3, H0253: 2, H0188: 2, H0165: 2, L0769: 2, L0637: 2, L0761: 2, L0665: 2, S0374: 2, H0682: 2, H0659: 2, L0748: 2, H0171: 1, H0685: 1, H0341: 1, H0255: 1, S0420: 1, H0586: 1, H0599: 1,	11q13	102200, 106100, 131100, 131100, 131100, 133780, 147050, 153700, 161015, 164009, 168461, 168461, 168461, 180721, 180840, 191181, 193235,

ID				SEQ ID	Mutations	Clones	Chromosome	OMIM
						H0510: 1, S6028: 1, H0428: 1, H0424: 1, H0102: 1, H0494: 1, H0560: 1, L0770: 1, L0662: 1, L0774: 1, L0659: 1, L0526: 1, L0518: 1, L0528: 1, L0787: 1, L0666: 1, L0663: 1, H0693: 1, H0658: 1, S0152: 1, S0028: 1, L0439: 1, L0745: 1, L0755: 1, L0758: 1 and L0601: 1.		209901, 232600, 259700, 259770, 600045, 600319, 600528, 601884
HCHBQ33	840756	47	148 - 480	2222	Arg-8 to Gln-19, Arg-25 to Lys-38.	H0483: 1, S0045: 1, S0046: 1, H0486: 1, H0012: 1, H0355: 1, S0364: 1, H0087: 1, H0413: 1, H0366: 1, S0028: 1, L0601: 1 and H0352: 1.	19p	
HDTMK30	840862	48	36 - 353	2223	Arg-2 to Pro-12, Lys-32 to Asn-37, His-75 to Asn-82.	H0486: 1, H0123: 1 and L0756: 1.	7q11.23	116860, 129900, 233700, 600079
HDPFX64	841088	49	320 - 1096	2224		L0757: 6, L0752: 5, L0439: 4, S0150: 2, L0774: 2, S3014: 2, L0747: 2, L0750: 2, S0276: 2, S0212: 1, S0007: 1, H0574: 1,	6pter-q12	

						H0581: 1, H0068: 1, S0036: 1, H0135: 1, T0067: 1, L0065: 1, H0529: 1, H0026: 1, L0762: 1, L0773: 1, L0521: 1, L0766: 1, S0052: 1, H0521: 1, L0748: 1, L0749: 1, L0731: 1, L0759: 1, L0485: 1, L0593: 1 and H0542: 1.	
HODFG71	843485	50	1013 - 951	2225	Asp-1 to Glu-6.	AR089: 3, AR060: 2, AR053: 2, AR096: 2, AR061: 2, AR039: 1, AR033: 1, AR055: 0, AR104: 0 H0615: 1	
HCE3I65	844534	51	2 - 244	2226		S0358: 1, H0052: 1, H0375: 1, H0087: 1, H0380: 1, H0435: 1, H0521: 1, S0390: 1 and L0366: 1.	
HSAVH65	847355	52	2 - 397	2227	Ser-90 to His-96, Arg-127 to Gln-132.	S0114: 2, H0686: 1, L0769: 1, L0644: 1, L0662: 1, L0774: 1, L0666: 1, H0659: 1, L0750: 1 and S0436: 1.	
HBXFT41	847647	53	707 - 817	2228	Glu-14 to Gly-23.	AR096: 2, AR089: 2, AR061: 1, AR039: 0, AR060: 0, AR055: 0,	19p13.3	108725, 120700, 133171,

Clone	Accession	No.	Range	SEQ ID	Mutation	Features / Notes
						136836, 145981, 147141, 164953, 188070, 600957, 601238, 601846, 602216, 602477
HBMCM38	847821	54	373 - 290	2229		AR033: 0, AR104: 0 L0717: 1, H0438: 1, H0090: 1 and L0749: 1.
						L0717: 1 and H0421: 1.
HACBO42	849064	55	3 - 86	2230	Arg-19 to Pro-25.	L0776: 5, L0439: 4, L0805: 3, H0009: 2, L0438: 2, H0580: 1, S0280: 1, S0346: 1, H0674: 1, L0774: 1, L0384: 1, L0747: 1, L0786: 1, L0780: 1, L0752: 1, L0608: 1, S0031: 1, L0608: 1, S0412: 1 and L0698: 1.
HODBF86	859572	56	276 - 338	2231		H0328: 2 and H0509: 1.
HOABP90	859622	57	628 - 735	2232	Asp-23 to Asn-30.	AR089: 2, AR039: 2, AR096: 1, AR053: 1, AR104: 1, AR060: 1, AR061: 0, AR055: 0, AR033: 0 H0252: 1

HE8UE42	862010	58	3 - 1610	2233	Glu-146 to Pro-151, Ala-231 to Ser-237, Asp-317 to Pro-322, Lys-365 to Gly-371, Phe-459 to Pro-464.	AR089: 8, AR060: 7, AR104: 5, AR096: 4, AR061: 3, AR055: 3

H0659: 5, L0740: 5, L0662: 4, L0771: 3, H0547: 3, H0521: 3, L0759: 3, L0362: 3, H0013: 2, H0597: 2, H0046: 2, H0083: 2, S0214: 2, H0674: 2, H0494: 2, L0517: 2, H0682: 2, L0747: 2, L0779: 2, S0434: 2, H0685: 1, H0583: 1, H0661: 1, H0638: 1, S0420: 1, S0360: 1, H0580: 1, H0438: 1, H0497: 1, H0599: 1, S0010: 1, H0581: 1, H0545: 1, H0457: 1, H0563: 1, L0163: 1, L0055: 1, H0673: 1, H0212: 1, H0591: 1, H0038: 1, H0616: 1, H0488: 1, S0142: 1, S0344: 1, L0763: 1, L0770: 1, L0767: 1, L0766: 1, L0776: 1, L0659: 1, L0782: 1, L0545: 1, H0144: 1,

| HUSJJ59 | 862481 | 59 | 65 - 316 | 2234 | Pro-1 to Met-6, Thr-47 to Asp-54. | H0672: 1, S0152: 1, S0406: 1, H0627: 1, S0390: 1, L0748: 1, L0777: 1, L0758: 1, S0026: 1, H0665: 1 and H0543: 1. | L0748: 7, L0747: 6, L0769: 5, L0731: 4, S0444: 3, H0083: 3, H0412: 3, L0775: 3, H0670: 3, S0380: 3, L0779: 3, L0758: 3, H0352: 3, H0170: 2, S0007: 2, T0048: 2, H0309: 2, H0081: 2, H0413: 2, H0059: 2, H0641: 2, L0774: 2, L0655: 2, L0526: 2, H0144: 2, H0659: 2, H0710: 2, H0696: 2, S0027: 2, L0757: 2, L0615: 1, S0040: 1, H0295: 1, H0656: 1, S0116: 1, H0341: 1, H0484: 1, H0661: 1, H0664: 1, S0360: 1, S0408: 1, H0637: 1, H0393: 1, H0411: 1, H0392: 1, H0486: 1, H0318: 1, L0738: 1, | 8p23.2-p23.1 |

| HSSDM07 | 863515 | 60 | 221 - 1090 | 2235 | Gln-1 to Ala-6, Arg-18 to His-24, Ala-80 to Val-88, | H0545: 1, L0471: 1, H0014: 1, T0023: 1, H0181: 1, H0606: 1, H0673: 1, S0366: 1, H0316: 1, H0163: 1, H0087: 1, H0625: 1, S0438: 1, H0633: 1, S0210: 1, L0598: 1, H0517: 1, L0520: 1, L0371: 1, L0772: 1, L0764: 1, L0521: 1, L0549: 1, L0803: 1, L0776: 1, L0540: 1, L0783: 1, L0809: 1, L0529: 1, L0663: 1, L0665: 1, S0374: 1, H0593: 1, S0126: 1, H0711: 1, H0658: 1, H0660: 1, H0648: 1, H0672: 1, S0378: 1, S0404: 1, S0406: 1, S0432: 1, S3014: 1, L0740: 1, L0752: 1, L0590: 1, L0599: 1, H0668: 1, S0026: 1, H0423: 1, H0422: 1, S0424: 1 and H0712: 1. | L0803: 3, H0556: 2, L0769: 2, L0800: 2, H0265: 1, S0134: 1, |

					Asp-97 to Asp-103, Arg-125 to Tyr-132, Arg-155 to Leu-161, Ser-167 to Asn-172, Gln-182 to Lys-187, Pro-206 to Thr-212, Glu-218 to Ser-228, Ser-236 to Pro-245.	S0358: 1, H0642: 1, H0575: 1, H0135: 1, L0809: 1, L0789: 1, S0330: 1, L0750: 1 and L0777: 1.
HBCBW52	866444	61	1101 - 1352	2236	Phe-31 to Gln-36, Glu-51 to Ile-79.	L0596: 5, S0114: 2, H0370: 1, H0012: 1, H0620: 1 and S0038: 1.
HOGAS18	867969	62	352 - 552	2237	Pro-1 to Ser-10, Leu-16 to Gly-21, Thr-43 to Thr-55, Lys-60 to Gly-67.	AR089: 6, AR060: 5, AR039: 4, AR096: 4, AR033: 2, AR055: 2, AR104: 1, AR061: 1, AR053: 0 H0435: 2, H0395: 1 and H0402: 1.
HHSDL18	869701	63	494 - 628	2238		L0471: 1, S0051: 1, H0040: 1 and L0747: 1.
HTFMS34	870486	64	2 - 460	2239	Tyr-1 to Trp-6.	L0511: 11, L0499: 6, L0509: 6, L0507: 5, L0502: 5, L0500: 5, L0508: 5, L0751: 5, L0493: 4, L0514: 4, L0504: 3, L0510: 3, L0809: 3, L0748: 3, L0505: 2, L0805: 2, L0515: 2, H0659: 2, H0670: 2, L0752: 2,

HLDOG81	874506	65	1232 - 798	2240	Ile-81 to Arg-91.	S0424: 2, H0431: 1, H0150: 1, H0039: 1, H0674: 1, H0087: 1, T0041: 1, L0800: 1, L0768: 1, L0789: 1, L0664: 1 and L0749: 1.	1q22-q25	104770, 107300, 107670, 110700, 131210, 136132, 145001, 146790, 150292, 159440, 159440, 159440, 173610, 186780, 191030, 191315, 208250, 233710, 600923, 600995, 601412, 601518, 601652, 602491

| HTXQF81 | 874608 | 66 | 2 - 628 | 2241 | Pro-3 to Arg-8, Gly-34 to Thr-53, Asp-60 to Ser-65, Phe-76 to Lys-81. | L0751: 13, L0771: 10, L0748: 9, L0601: 7, S0356: 6, L0731: 6, L0758: 6, L0769: 4, L0565: 4, L0747: 4, L0756: 4, L0596: 4, H0598: 3, L0766: 3, S0052: 3, S0206: 3, L0750: 3, H0542: 3, H0294: 2, H0657: 2, L0785: 2, S0418: 2, S0358: 2, S0360: 2, H0586: 2, H0587: 2, H0575: 2, H0081: 2, H0620: 2, H0083: 2, H0271: 2, H0622: 2, H0617: 2, H0494: 2, S0142: 2, L0374: 2, L0521: 2, L0381: 2, L0775: 2, L0776: 2, L0659: 2, S0027: 2, L0777: 2, L0759: 2, H0445: 2, L0591: 2, L0604: 2, H0556: 1, T0002: 1, H0222: 1, S0040: 1, H0295: 1, S0218: 1, H0341: 1, S0180: 1, S0212: 1, H0484: 1, H0241: 1, S0420: 1, S0354: 1, | Xp11.23 | 300047, 300071, 300110, 300600, 301000, 301000, 301830, 309470, 309500, 309610, 309850, 311050, 312060 |

| H0580: 1, S0045: 1, S0046: 1, S0278: 1, L0623: 1, H0486: 1, T0060: 1, H0427: 1, H0253: 1, H0581: 1, H0204: 1, H0597: 1, H0123: 1, H0011: 1, S0362: 1, H0375: 1, H0594: 1, H0179: 1, H0188: 1, H0428: 1, H0604: 1, H0213: 1, H0031: 1, L0055: 1, H0068: 1, H0090: 1, H0634: 1, H0063: 1, H0380: 1, H0433: 1, H0560: 1, S0466: 1, H0641: 1, H0649: 1, S0344: 1, H0026: 1, L0763: 1, L0761: 1, L0772: 1, L0372: 1, L0662: 1, L0378: 1, L0783: 1, L0384: 1, L0383: 1, L0666: 1, L0664: 1, S0126: 1, S0380: 1, S0152: 1, H0521: 1, S0406: 1, H0555: 1, L0740: 1, L0749: 1, L0780: 1, L0757: 1, S0192: 1, S0276: 1 and H0543: 1. |

HCRNG90	874787	67	87 - 947	2242	Thr-5 to Gly-11, Arg-63 to Lys-73, Gln-92 to Glu-98, Ala-106 to Gly-112.	AR061: 56, AR055: 46, AR104: 43, AR096: 27, AR060: 25, AR089: 17 S0356: 4, L0809: 4, H0551: 2, S0342: 1, S0212: 1, H0544: 1, H0046: 1, L0803: 1, L0774: 1, S0126: 1 and S0152: 1.	6q14-q21	120110, 121014, 136550, 203310, 269920, 601666, 602772
HPWCL64	874891	68	2 - 601	2243	Glu-26 to Ser-33, Thr-82 to Phe-90, Met-107 to Asn-114, Thr-125 to Glu-131, His-175 to Asp-180.	L0766: 7, L0771: 4, L0752: 4, L0438: 2, L0756: 2, L0777: 2, L0780: 2, H0341: 1, T0115: 1, T0110: 1, L0776: 1, L0783: 1, L0663: 1, S0044: 1, L0744: 1, L0439: 1, L0754: 1, L0750: 1 and L0779: 1.		
HWLMV62	874930	69	2 - 463	2244		H0140: 1, S0116: 1, S0376: 1, S0360: 1, L0695: 1, H0412: 1, H0641: 1, L0662: 1, L0803: 1, L0774: 1, L0527: 1, L0659: 1, L0663: 1, L0664: 1, L0665: 1, H0682: 1, H0435: 1, H0648: 1, L0743: 1, L0731: 1,		

H2MAC06	874931	70	2 - 763	2245	
					S0434: 1, L0596: 1 and L0362: 1.
					AR096: 102, AR055: 51, AR089: 46, AR060: 30, AR104: 29, AR061: 19
					S0406: 23, L0362: 22, S0410: 13, H0593: 12, H0674: 10, S0434: 9, L0764: 8, S0358: 7, L0646: 7, H0506: 6, H0509: 5, L0809: 5, H0435: 5, S0376: 4, L0765: 4, L0382: 4, L0751: 4, H0686: 3, H0252: 3, H0169: 3, H0670: 3, S0330: 3, H0656: 2, S0116: 2, S0132: 2, H0581: 2, H0596: 2, S0314: 2, T0023: 2, H0059: 2, S0440: 2, L0372: 2, L0381: 2, L0659: 2, L0666: 2, H0690: 2, L0750: 2, L0596: 2, L0601: 2, H0171: 1, S0430: 1, H0650: 1, H0663: 1, H0306: 1, S0360: 1, T0104: 1, T0071: 1, H0421: 1,

HWLRF06	875093	71	2 - 385	2246	Gly-2 to Gly-7, Glu-9 to Gln-16, Cys-24 to Gly-30, Ala-35 to Ala-45, Ala-55 to Ala-60, Cys-79 to Leu-90, Asp-95 to Asp-103.	H0251: 1, H0263: 1, H0204: 1, H0231: 1, H0039: 1, H0622: 1, L0194: 1, L0483: 1, S0368: 1, H0032: 1, H0090: 1, H0040: 1, H0488: 1, H0494: 1, S0352: 1, H0646: 1, L0762: 1, L0800: 1, L0553: 1, L0648: 1, L0775: 1, L0376: 1, L0653: 1, L0540: 1, L0783: 1, L0664: 1, S0053: 1, S0374: 1, H0682: 1, H0684: 1, H0658: 1, H0648: 1, H0672: 1, S0328: 1, S0152: 1, S0432: 1, S0436: 1 and L0600: 1.	S0212: 1 and S0360: 1.
HODDO41	875352	72	323 - 487	2247	Glu-29 to Asn-42.	H0328: 2	
HCHMQ74	875371	73	3 - 440	2248	Pro-6 to Leu-25, Ser-34 to Arg-53, Pro-71 to Gly-81,	S0330: 2, L0748: 2, H0484: 1, T0114: 1 and L0764: 1.	

HT3AI55	875682	74	1 - 504	2249	Ser-83 to Glu-94.	L0749: 3, S0356: 2, L0766: 2, H0170: 1, H0140: 1, L0770: 1, L0662: 1, L0659: 1, H0682: 1, L0752: 1, L0731: 1, L0758: 1 and H0542: 1.
HMVBD68	876052	75	130 - 276	2250		L0745: 6, S0360: 4, S0440: 2, H0341: 1, S0212: 1, L0717: 1, H0587: 1, H0497: 1, H0574: 1, H0687: 1, H0428: 1, S0422: 1, L0667: 1, L0645: 1, L0662: 1, L0768: 1, L0649: 1, L0518: 1, H0435: 1, S0380: 1, H0518: 1, L0754: 1, L0746: 1, S0434: 1, L0592: 1 and S0424: 1.
HOCTA74	876487	76	65 - 292	2251	Lys-1 to Ser-7.	L0748: 5, L0764: 4, L0774: 4, L0758: 3, L0662: 2, L0751: 2, L0608: 2, L0760: 1, S0444: 1, H0331: 1, H0263: 1, H0674: 1, L0770: 1, L0649: 1, L0803: 1, L0775: 1, L0809: 1, L0666: 1,

HISET05	876686	77	433 - 909	2252	Ala-1 to Thr-8, Ala-15 to Pro-23, Pro-68 to Gly-78, Ser-82 to Gly-93, Gly-118 to Ala-135.	L0663: 1, L0665: 1, S0374: 1, L0565: 1, H0648: 1, L0752: 1, L0596: 1, L0361: 1, S0026: i and H0506: 1. L0761: 2, L0800: 1, L0773: 1, L0803: 1 and H0539: 1.		
HCRQM22	876696	78	3 - 332	2253	Arg-1 to Arg-7, Gly-72 to Asp-78, Lys-83 to Gln-90.	S0356: 1, H0318: 1, H0038: 1 and H0040: 1.	12p13	103950, 120580, 131440, 139130, 142680, 176260, 190450, 200990, 216950, 600228, 600414, 600618, 602096
HLHTC92	877310	79	143 - 478	2254	Met-2 to Leu-12, Ser-16 to Asp-23, Gly-38 to Lys-45.	H0208: 1, H0263: 1, H0412: 1 and L0754: 1.		
H2CAA49	879484	80	1426 - 203	2255	Lys-44 to His-50, Thr-110 to Pro-116, Lys-178 to Gln-183, Pro-196 to Lys-205,			

| HETKQ94 | 880545 | 81 | 2 - 943 | 2256 | Arg-214 to Thr-220, Asp-295 to Leu-301, Pro-316 to Glu-324, Glu-331 to Tyr-336, Gly-347 to Val-354. Lys-84 to Gly-98, Asp-126 to Pro-134, Ser-208 to His-218, Tyr-233 to Asp-243, Arg-288 to Pro-295, Gly-303 to Ser-314. | AR052: 3, AR061: 3, AR089: 3, AR096: 2, AR055: 2, AR060: 2, AR053: 2, AR033: 2, AR039: 1, AR104: 1 H0046: 6, L0769: 3, L0748: 3, L0779: 3, L0777: 3, S0358: 2, S0005: 2, H0618: 2, L0662: 2, L0776: 2, H0547: 2, L0439: 2, L0751: 2, L0600: 2, S0040: 1, S0134: 1, S0218: 1, H0650: 1, S0418: 1, S0045: 1, H0549: 1, H0333: 1, H0486: 1, H0253: 1, H0231: 1, H0620: 1, H0014: 1, S0250: 1, H0063: 1, H0087: 1, H0264: 1, H0280: 1, L0640: 1, L0770: 1, L0764: 1, L0768: 1, L0806: 1, L0663: 1, L0664: 1, H0520: 1, |

HOFMO23	882466	82	5 - 502	2257	Asn-40 to Val-45.
					H0539: 1, S0390: 1, S0028: 1, L0747: 1, L0758: 1 and S0424: 1. 7 AR089: 2, AR096: 1, AR060: 1, AR039: 0, AR061: 0, AR033: 0, AR104: 0 H0415: 2
HNTNP58	882787	83	2162 - 2383	2258	AR039: 105, AR096: 91, AR089: 70, AR104: 48, AR033: 48, AR053: 46, AR060: 43, AR055: 18, AR061: 16 S0444: 5, H0436: 5, L0521: 3, H0684: 3, H0659: 3, L0758: 3, S0410: 2, H0250: 2, S0049: 2, L0471: 2, H0266: 2, H0625: 2, S0440: 2, L0805: 2, H0690: 2, L0747: 2, L0779: 2, S0026: 2, H0422: 2, H0170: 1, H0265: 1, H0556: 1, H0686: 1, S0040: 1, S0342: 1, H0294: 1, H0341: 1, H0664: 1, H0638: 1, S0007: 1, S0046: 1, H0351: 1, H0559: 1, H0427: 1,

HOFNY28	888480	84	3 - 479	2259	H0421: 1, L0738: 1, H0545: 1, H0083: 1, H0628: 1, H0321: 1, H0412: 1, T0069: 1, H0202: 1, H0494: 1, S0422: 1, L0763: 1, L0769: 1, L0772: 1, L0764: 1, L0657: 1, L0783: 1, L0809: 1, L0519: 1, L0665: 1, H0698: 1, H0691: 1, H0724: 1, H0520: 1, H0547: 1, S0126: 1, H0670: 1, H0660: 1, H0666: 1, H0648: 1, H0134: 1, S0028: 1, L0756: 1, L0752: 1, S0434: 1, L0589: 1, H0136: 1, S0194: 1, S0276: 1, H0543: 1 and H0423: 1.	AR053: 6, AR089: 6, AR039: 6, AR060: 5, AR104: 4, AR096: 4, AR033: 3, AR055: 3, AR061: 2, H0415: 1	11p15	108985, 186921, 602092
HE8MQ01	889128	85	2612 - 2478	2260	Ser-8 to Cys-14, Trp-34 to Phe-45.	H0729: 1, H0392: 1, H0013: 1, H0318: 1, H0009: 1, H0328: 1,		

| HE2RG21 | 891139 | 86 | 2 - 553 | 2261 | Arg-1 to Asn-14, Lys-47 to Glu-53, Ser-59 to Ser-70, Gln-82 to Gly-93, Glu-100 to Glu-105, Gly-123 to Ser-129, Phe-164 to Lys-173. | H0615: 1, T0041: 1, L0662: 1, L0768: 1, L0522: 1, H0436: 1, H0444: 1 and S0308: 1. |
| HIHENW77 | 894855 | 87 | 3 - 341 | 2262 | | AR033: 8, AR104: 6, AR089: 3, AR039: 3, AR060: 2, AR061: 2, AR096: 2, AR053: 0, AR055: 0 H0539: 9, H0052: 5, T0010: 4, L0439: 4, L0769: 3, L0443: 2, H0046: 2, L0456: 2, L0770: 2, L5574: 2, L0803: 2, L0664: 2, L0438: 2, L0751: 2, L0747: 2, S0436: 2, H0542: 2, H0717: 1, S0010: 1, H0744: 1, H0562: 1, H0012: 1, S0388: 1, H0510: 1, H0418: 1, H0617: 1, S0038: 1, L0351: 1, |

L0762: 1, L0631: 1, L0638: 1, L5565: 1, L0764: 1, L0794: 1, L0649: 1, L0774: 1, L0806: 1, L0655: 1, L0659: 1, L0635: 1, L0382: 1, L0788: 1, L0666: 1, H0520: 1, H0658: 1, H0670: 1, H0660: 1, H0648: 1, H0696: 1, L0742: 1, L0750: 1, L0780: 1, L0752: 1, H0445: 1, H0543: 1, H0423: 1 and H0422: 1.

HOFNU55	897344	88	705 - 517	2263	Phe-58 to Ala-63.	H0415: 2
HE8TE40	897862	89	86 - 1165	2264	Ser-50 to Thr-57, Pro-89 to Arg-96, Thr-128 to Glu-137, Cys-150 to Asp-155, Arg-176 to Lys-184, Glu-186 to Cys-201, Ala-238 to Ala-247, Pro-270 to Pro-277, Thr-283 to Thr-295, Leu-329 to Arg-338, Gln-345 to Arg-350.	L0803: 8, S0408: 4, L0804: 3, L0805: 3, L0766: 2, L0779: 2, S0114: 1, H0341: 1, H0662: 1, S0222: 1, H0486: 1, H0013: 1, H0581: 1, H0615: 1, H0038: 1, S0440: 1, L0800: 1, L0521: 1, L0794: 1, L0774: 1, L0806: 1, L0526: 1, L0789: 1, L0790: 1, L0792: 1, L4501: 1, L0663: 1, H0519: 1,

| HNTCH73 | 900546 | 90 | 114 - 1418 | 2265 | Ala-69 to Ser-77,
Arg-95 to Lys-102,
Gln-117 to Gln-125,
Tyr-133 to Arg-140,
Pro-157 to Ser-163,
Glu-190 to Phe-202,
Trp-251 to Asn-258,
Gln-270 to Gln-277,
Leu-285 to Gly-290,
Thr-312 to Arg-337. | AR089: 3, AR096: 2,
AR060: 1, AR033: 1,
AR104: 1, AR061: 1,
AR055: 0, AR039: 0,
AR053: 0
H0686: 4, H0574: 3,
H0412: 3, S0045: 2,
H0024: 2, L0777: 2,
L0759: 2, L0603: 2,
H0664: 1, S0418: 1,
S0358: 1, S0360: 1,
H0208: 1, S0046: 1,
H0619: 1, H0549: 1,
H0632: 1, H0485: 1,
H0309: 1, H0085: 1,
H0235: 1, L0471: 1,
H0620: 1, H0083: 1,
S6028: 1, H0622: 1,
S0366: 1, S0464: 1,
L0065: 1, L0638: 1,
L0637: 1, L0764: 1,
L0773: 1, L0768: 1,
L0774: 1, L0659: 1,
H0144: 1, S0374: 1,
L0438: 1, H0547: 1,
H0519: 1, S0406: 1,
S0380: 1, H0696: 1,
L0612: 1, L0745: 1,
L0756: 1, L0780: 1,
L0752: 1 and H0543: 1. | 14q22-q23 | 107970,
112262,
182600,
182870,
182870,
182870,
232700,
602086 |

HHFBY53	902534	91	3 - 299	2266	Lys-9 to Ser-15, Pro-29 to Ala-35.	AR060: 3, AR033: 1, AR089: 1, AR104: 1, AR096: 0, AR055: 0, AR039: 0, AR061: 0 S0360: 3, H0670: 3, H0556: 2, H0292: 2, H0686: 1, H0685: 1, S0134: 1, S0116: 1, H0662: 1, H0640: 1, S0300: 1, H0586: 1, H0642: 1, L0622: 1, L0586: 1, H0253: 1, H0050: 1, H0057: 1, T0006: 1, L0653: 1, L0657: 1, L0659: 1, L0787: 1, L0666: 1, L0663: 1, H0547: 1, H0659: 1, H0648: 1, H0436: 1, L0748: 1, L0362: 1, L0361: 1, H0653: 1, H0542: 1, H0423: 1 and H0422: 1. H0627: 1, H0631: 1, L0749: 1, L0779: 1, S0026: 1, H0136: 1 and S0194: 1.	Xq13.1	304040, 305100, 305450, 309605, 312760, 314250, 314580
HDPIE44	904763	92	1 - 2418	2267	Pro-1 to Arg-13, Pro-71 to Ser-77, Asn-107 to Ser-122, Val-150 to Pro-155,	AR052: 2, AR033: 2, AR096: 2, AR053: 1, AR060: 1, AR104: 1, AR055: 1, AR089: 1,		

| HHSAX10 | 904783 | 93 | 3 - 683 | 2268 | Ser-235 to Lys-241, Arg-349 to Phe-360, Thr-363 to Glu-376, Gln-438 to Thr-443, Leu-466 to Ala-472, Lys-475 to Thr-484, Ser-511 to Val-516, Glu-544 to Ser-550, Tyr-627 to Thr-632, Arg-650 to Lys-658, Asp-683 to Asn-688, Glu-740 to Glu-746, Tyr-755 to Glu-760. | AR061: 0, AR039: 0, S0358: 3, H0622: 2, H0553: 2, H0090: 2, L0769: 2, L0794: 2, H0547: 2, S0126: 2, L0747: 2, H0265: 1, S0418: 1, H0208: 1, S0045: 1, H0486: 1, H0052: 1, H0046: 1, H0024: 1, H0051: 1, H0375: 1, H0634: 1, H0488: 1, T0042: 1, H0494: 1, H0561: 1, S0438: 1, H0538: 1, L0800: 1, L0803: 1, L0804: 1, L0805: 1, L4501: 1, H0521: 1, H0555: 1, L0779: 1, S0436: 1 and H0506: 1. |
| | | | | | Lys-33 to Arg-46, Met-141 to His-150, Thr-205 to Thr-211, Arg-218 to Ser-226. | AR033: 35, AR104: 29, AR089: 13, AR096: 11, AR060: 9, AR052: 8, AR053: 7, AR055: 6, AR039: 5, AR061: 2, L0745: 7, L0756: 7, L0598: 6, S0346: 5, S0036: 5, L0769: 4, L0777: 4, L0731: 4, S0010: 3, H0052: 3, |

S0051: 3, L0770: 3,
L0803: 3, L0438: 3,
L0758: 3, S0031: 3,
H0170: 2, H0438: 2,
S0049: 2, T0010: 2,
H0687: 2, H0038: 2,
H0616: 2, L0351: 2,
L0794: 2, L0806: 2,
L0790: 2, H0660: 2,
L0439: 2, L0751: 2,
L0754: 2, L0366: 2,
S6024: 1, S0300: 1,
H0351: 1, S0222: 1,
H0013: 1, T0048: 1,
H0194: 1, H0009: 1,
H0565: 1, H0050: 1,
H0242: 1, H0051: 1,
H0201: 1, S0388: 1,
H0083: 1, H0510: 1,
H0428: 1, H0031: 1,
L0455: 1, S0039: 1,
H0561: 1, L0369: 1,
L0520: 1, L0371: 1,
L0638: 1, L0796: 1,
L0637: 1, L0662: 1,
L0774: 1, L0635: 1,
L0809: 1, L0666: 1,
L0663: 1, H0659: 1,
H0648: 1, H0651: 1,
S0330: 1, S3014: 1,

| HPIAX83 | 906066 | 94 | 156 - 2459 | 2269 | Gly-1 to Ser-9,
Arg-127 to Arg-138,
Tyr-188 to Arg-193,
Arg-246 to His-254,
Ser-428 to Arg-434,
Lys-487 to Lys-493,
Gly-515 to Leu-523,
Leu-545 to Asn-550,
Leu-579 to Ala-588,
Lys-631 to Cys-639,
Lys-717 to Ser-724. | AR052: 5, AR033: 4,
AR061: 3, AR089: 3,
AR060: 3, AR055: 3,
AR104: 3, AR096: 3,
AR053: 3, AR039: 1
L0157: 4, L0777: 4,
L0759: 4, H0551: 3,
H0144: 3, L0438: 3,
S0360: 2, S0036: 2,
L0771: 2, L0775: 2,
L0659: 2, L0783: 2,
S0374: 2, H0658: 2,
H0672: 2, L0591: 2,
S0342: 1, S0358: 1,
H0722: 1, H0427: 1,
S0346: 1, H0581: 1,
H0327: 1, L0471: 1,
S0051: 1, S0003: 1,
H0040: 1, H0561: 1,
S0440: 1, S0150: 1,
L0770: 1, L0764: 1,
L0662: 1, L0774: 1,
L0526: 1, L0519: 1,
L0666: 1, L0663: 1,
L0665: 1, L0352: 1, |

L0748: 1, L0740: 1,
L0780: 1, L0752: 1,
L0753: 1, L0759: 1,
S0260: 1, L0589: 1 and
L0592: 1.

						H0547: 1, H0684: 1, H0659: 1, H0648: 1, H0539: 1, S0152: 1, S0028: 1, L0756: 1, L0779: 1, L0731: 1, L0758: 1, S0434: 1, S0436: 1, L0362: 1, H0542: 1 and H0422: 1.
HOFNG28	908746	95	3 - 401	2270	Gln-76 to Asp-82, Lys-96 to Gln-103.	AR052: 2, AR089: 2, AR055: 1, AR060: 1, AR096: 1, AR033: 1, AR061: 1, AR104: 1, AR053: 0, AR039: 0 H0415: 2
HOFOB27	911947	96	565 - 1491	2271	Cys-1 to Cys-15, Arg-24 to Gly-31, Lys-37 to Glu-47, Glu-85 to Lys-92, Tyr-102 to Gly-107, Asp-166 to Lys-181, Phe-216 to His-229, Gln-248 to Phe-254, Arg-260 to Cys-267, Ser-285 to Arg-296.	AR053: 2, AR089: 2, AR055: 1, AR060: 1, AR096: 1, AR061: 0, AR039: 0, AR033: 0, AR104: 0 L0758: 6, H0620: 4, L0769: 4, L0777: 4, H0556: 3, S0420: 2, L0770: 2, L0803: 2, L0776: 2, L0659: 2, L0666: 2, S0374: 2, L0748: 2, L0591: 2, H0265: 1, H0685: 1, S0134: 1, H0484: 1, S0354: 1, S0360: 1, S0408: 1, H0580: 1,

HHBHJ45	913831	97	2 - 1498	2272		2p14-p16	
				Ala-65 to Lys-73, Phe-135 to Arg-140, Glu-174 to Pro-184, Glu-207 to Ala-212, Lys-220 to Asp-231, Glu-236 to Lys-252, Glu-268 to Asn-286, Leu-378 to Ser-384, Gln-421 to Gly-437, Leu-448 to Asp-453, Glu-485 to Trp-495.	H0415: 1, H0587: 1, H0599: 1, H0053: 1, H0052: 1, H0081: 1, H0288: 1, H0428: 1, H0059: 1, H0633: 1, L0766: 1, L0650: 1, L0805: 1, L0655: 1, L0606: 1, L0791: 1, L0664: 1, H0144: 1, L0438: 1, H0547: 1, H0690: 1, H0682: 1, S0378: 1, H0521: 1, L0439: 1, L0740: 1, L0751: 1, L0755: 1, L0595: 1, H0665: 1, S0424: 1 and H0677: 1. L0775: 6, H0659: 5, L0438: 4, L0747: 4, S0408: 3, L0439: 3, H0040: 2, L0509: 2, L0513: 2, L0751: 2, L0756: 2, L0755: 2, L0596: 2, L0362: 2, S0040: 1, H0341: 1, S0354: 1, H0411: 1, H0497: 1, S0049: 1, H0373: 1, T0010: 1, S0214: 1, S0366: 1, H0413: 1, L0769: 1, L0772: 1, L0764: 1,		126600, 126600, 136435, 160980, 203800, 600678

HHPDV90	914163	98	1188 - 1045	2273	Asn-21 to Lys-39, Leu-43 to Lys-48.	AR096: 7, AR089: 6, AR060: 5, AR053: 4, AR104: 4, AR033: 3, AR055: 3, AR061: 2 L0777: 13, L0766: 6, L0803: 4, L0752: 4, L0769: 3, L0794: 3, L0747: 3, L0755: 3, L0805: 2, L0776: 2, L0655: 2, L0659: 2, H0547: 2, L0759: 2, L0596: 2, H0650: 1, S0360: 1, S0010: 1, H0150: 1, H0024: 1, H0051: 1, H0553: 1, H0090: 1, H0412: 1, L0761: 1, L0771: 1, L0626: 1, L0768: 1, L0387: 1, L0766: 1, L0498: 1, L0650: 1, L0774: 1, L0375: 1, L0508: 1, L0655: 1, L0657: 1, L0783: 1, L0663: 1, L0352: 1, H0547: 1, H0593: 1, H0648: 1, S0136: 1, H0522: 1, H0696: 1, L0750: 1, L0758: 1, S0434: 1, L0604: 1 and H0423: 1.

| HWMMQ47 | 915068 | 99 | 2 - 232 | 2274 | Gly-41 to Gly-53, Gly-65 to Arg-77. | L0363: 1, L0804: 1, H0519: 1, S0122: 1, H0435: 1, H0658: 1, H0648: 1, L0740: 1, L0750: 1, L0757: 1, H0543: 1 and H0423: 1. | S0444: 5, S0358: 4, S0410: 4, S0406: 4, L0759: 4, L0604: 4, H0686: 3, H0728: 3, H0083: 3, H0659: 3, H0658: 3, L0747: 3, L0581: 3, H0657: 2, H0341: 2, H0484: 2, H0734: 2, H0550: 2, S0222: 2, H0052: 2, T0006: 2, S0364: 2, H0038: 2, H0413: 2, S0422: 2, L0768: 2, L0774: 2, L0775: 2, L0783: 2, H0690: 2, H0670: 2, H0648: 2, S0380: 2, L0757: 2, L0758: 2, L0588: 2, L0608: 2, L0601: 2, S0026: 2, H0170: 1, S0114: 1, H0381: 1, S0282: 1, H0638: 1, S0442: 1, S0360: 1, H0730: 1, H0735: 1, |

| HBGNY08 | 915214 | 100 | 429 - 70 | 2275 | S0045: 1, S0046: 1, S0132: 1, H0587: 1, H0559: 1, L0622: 1, H0486: 1, T0114: 1, T0082: 1, S0010: 1, H0421: 1, H0173: 1, H0231: 1, L0738: 1, H0569: 1, H0688: 1, H0428: 1, H0213: 1, H0166: 1, H0674: 1, H0616: 1, H0412: 1, H0625: 1, L0065: 1, S0438: 1, H0509: 1, H0131: 1, H0529: 1, L0763: 1, L0500: 1, L0769: 1, L0638: 1, L0764: 1, L0662: 1, L0766: 1, L0803: 1, L0632: 1, L0655: 1, L0543: 1, L5623: 1, L0664: 1, H0214: 1, H0732: 1, S0028: 1, L0741: 1, L0742: 1, L0754: 1, L0749: 1, L0752: 1, L0731: 1, S0436: 1, H0668: 1, H0136: 1 and H0352: 1. H0373: 1 and H0617: 1. | 14q11-q12 | 160760, 160760, 182600 |

HODGH45	917394	101	567 - 941	2276	Arg-7 to Arg-12, Pro-77 to Asp-82.	H0615: 2 and S0052: 1.	600243, 600792, 601369, 602086, 602279, 602279
HWLKE58	917716	102	3 - 536	2277	Pro-1 to Val-11, Asp-25 to Glu-34, Arg-117 to Gln-122, Thr-147 to Arg-152, Glu-160 to Cys-172.	L0731: 7, L0605: 6, L0766: 4, L0655: 4, L0659: 4, L0756: 4, L0803: 3, H0648: 3, L0777: 3, S0358: 2, S0408: 2, L0021: 2, H0014: 2, T0010: 2, L0143: 2, H0641: 2, L0638: 2, L0662: 2, L0794: 2, L0776: 2, L0657: 2, L0809: 2, L0666: 2, L0663: 2, L0751: 2, L0755: 2, L0758: 2, L0588: 2, H0543: 2, H0170: 1, H0657: 1, S0212: 1, H0661: 1, H0663: 1, S0420: 1, S0360: 1, L0717: 1, L0586: 1, L0105: 1, H0318: 1, L0581: 1, H0052: 1, H0309: 1, L0157: 1,	

HRADL40	919433	103	1 - 942	2278	Phe-1 to Arg-7, Arg-40 to Gly-46, Lys-96 to Ser-102, Cys-126 to Ala-131, Asp-260 to Leu-265, Arg-308 to Gly-314.	H0424: 5, H0550: 3, L0769: 3, L0601: 3, S0408: 2, H0592: 2, H0560: 2, L0761: 2, L0774: 2, L0806: 2, L0776: 2, H0659: 2, L0777: 2, L0780: 2, L0759: 2, H0136: 2, S0424: 2, H0170: 1, H0556: 1, H0341: 1, S0418: 1, S0356: 1, S0442: 1, S0360: 1,	L0471: 1, H0024: 1, H0354: 1, S0003: 1, H0328: 1, H0615: 1, H0169: 1, H0163: 1, H0090: 1, H0272: 1, T0041: 1, S0440: 1, S0142: 1, S0210: 1, L0372: 1, L0645: 1, L0764: 1, L0651: 1, L0656: 1, L0789: 1, L0665: 1, S0126: 1, H0682: 1, H0435: 1, H0659: 1, S0380: 1, H0518: 1, H0696: 1, L0439: 1, L0740: 1, L0746: 1, L0750: 1, L0779: 1, L0752: 1 and S0260: 1.	16p13.3	141750, 141800, 141800, 141800, 141850, 141850, 141850, 141850, 141850, 141850, 156850, 186580,

HOFMP73	919895	104	92 - 1129	2279		
				Ala-24 to Phe-30, Asn-42 to Trp-48, Val-57 to Leu-62, Ser-90 to Gln-96, Lys-104 to Cys-112, Gly-150 to Gly-159, Tyr-180 to Cys-186,	AR060: 2, AR061: 2, AR055: 1, AR089: 1, AR096: 1, AR033: 0, AR039: 0 H0415: 2 and H0414: 1.	8p22
					S0278: 1, H0390: 1, T0048: 1, H0620: 1, H0510: 1, H0687: 1, H0688: 1, H0622: 1, T0006: 1, H0033: 1, H0213: 1, H0617: 1, S0450: 1, S0440: 1, L0646: 1, L0773: 1, L0662: 1, L0803: 1, L0653: 1, L0655: 1, L0657: 1, L0656: 1, L0659: 1, L0365: 1, L0783: 1, L0789: 1, L0663: 1, L0665: 1, H0547: 1, H0658: 1, H0660: 1, H0648: 1, S0380: 1, H0696: 1, H0555: 1, S0027: 1, S0028: 1, L0748: 1, L0439: 1, L0751: 1, L0752: 1, L0596: 1, L0599: 1, L0604: 1 and H0543: 1.	148370, 238600, 238600, 238600, 238600, 600143, 601385,
						191092, 600140, 600273, 601313, 601785

						602629
HOFMS02	920253	105	21 - 272	2280	Pro-193 to Asp-210, Pro-220 to Ser-235, Ser-306 to Asp-313, Thr-339 to Ile-346.	H0415: 4
HUVHD12	921707	106	1 - 666	2281	Phe-24 to Glu-48. Tyr-44 to Trp-63, Thr-84 to Thr-90, Gln-111 to Tyr-116.	L0805: 9, L0747: 9, L0770: 8, L0794: 8, L0756: 8, H0271: 7, L0769: 5, L0748: 5, L0750: 5, H0305: 4, L0766: 4, L0804: 4, L0809: 4, H0265: 3, H0052: 3, H0051: 3, H0623: 3, L0803: 3, L0775: 3, H0556: 2, H0441: 2, H0486: 2, H0069: 2, H0050: 2, H0620: 2, S0051: 2, H0416: 2, S0036: 2, H0135: 2, S0002: 2, L0761: 2, L0768: 2, L0666: 2, H0144: 2, L0438: 2, L0439: 2, L0777: 2, S0114: 1, L0785: 1, S0001: 1, S0035: 1, H0402: 1, H0638: 1, H0580: 1, S0045: 1, S0046: 1, S0222: 1, H0333: 1, H0635: 1, H0036: 1,

| HMVDQ41 | 922191 | 107 | 327 - 809 | 2282 | H0581: 1, H0024: 1, H0687: 1, H0068: 1, H0040: 1, H0412: 1, H0056: 1, S0352: 1, L0763: 1, L0796: 1, L5575: 1, L0800: 1, L0375: 1, L0651: 1, L0788: 1, L0790: 1, L0791: 1, L0663: 1, L0665: 1, S0052: 1, S0428: 1, S0216: 1, H0519: 1, H0593: 1, H0658: 1, H0660: 1, H0555: 1, L0743: 1, L0786: 1, L0779: 1, L0758: 1, S0436: 1, L0361: 1, L0366: 1, S0106: 1 and H0423: 1. L0752: 24, L0751: 7, L0748: 6, L0777: 6, L0775: 5, L0742: 5, L0749: 5, S0358: 4, L0776: 4, L0756: 4, S0376: 3, L0757: 3, S0212: 2, S0444: 2, S0010: 2, L0770: 2, L0764: 2, L0773: 2, L0774: 2, H0519: 2, L0743: 2, L0740: 2, L0731: 2, L0758: 2, |

HODGI03	922879	108	3 - 227	2283	Lys-1 to Trp-26, Lys-34 to Ile-42.	L0604: 2, L0603: 2, S0298: 1, H0661: 1, S0442: 1, S0354: 1, S0360: 1, S0408: 1, H0632: 1, H0156: 1, H0421: 1, H0196: 1, H0052: 1, L0738: 1, H0009: 1, L0471: 1, H0239: 1, S0003: 1, T0067: 1, H0413: 1, H0059: 1, S0438: 1, S0440: 1, L0768: 1, L0794: 1, L0766: 1, L0803: 1, L0804: 1, L0375: 1, L0806: 1, L0783: 1, S0374: 1, H0659: 1, S0328: 1, S0152: 1, S0404: 1, S0406: 1, S0027: 1, L0439: 1, L0779: 1, L0753: 1, L0755: 1, L0759: 1 and S0242: 1.	H0615: 2		
HODHD14	922955	109	1 - 174	2284			H0615: 3 and H0352: 1.		
HODDC03	925296	110	3 - 311	2285	Lys-10 to Arg-32.		H0328: 1 and H0615: 1.		
HVCAG04	925735	111	1368 - 781	2286				2q21-q22	133510, 133510,

HCRCE02	925837	112	31 - 129	2287		L0756: 6, L0776: 2, L0744: 2, H0486: 1, H0327: 1, S0003: 1, H0090: 1, L0761: 1, L0662: 1, L0766: 1, L0518: 1, H0659: 1, H0670: 1, S0406: 1, L0777: 1, L0780: 1, L0605: 1, L0366: 1 and H0423: 1.	165320, 223000, 223000, 256030
HHERA91	926067	113	2028 - 2399	2288	Ser-59 to Leu-66, Leu-76 to Trp-87, Arg-92 to Gly-105.	AR053: 3, AR089: 3, AR096: 2, AR060: 2, AR033: 2, AR061: 1, AR104: 1, AR055: 0	
HAGDL82	928396	114	2 - 94	2289	Pro-21 to Ala-28.		
HWBDS34	930484	115	3 - 983	2290	Pro-18 to Leu-25, Asp-72 to Ser-82, Pro-97 to Gly-107, Leu-110 to Ser-137.	S0212: 4, H0580: 1, S0045: 1, H0351: 1, S0010: 1, S0003: 1, H0560: 1, S0002: 1 and L0604: 1.	
H6ESA39	933568	116	2 - 1150	2291	Ala-9 to Trp-14.	L0758: 4, H0556: 3, L0751: 3, S0408: 2, H0618: 2, L0768: 2, H0547: 2, H0660: 2, L0754: 2, L0779: 2,	

HPCOR06	933678	117	147 - 281	2292		H0659: 2 and L0777: 2. H0661: 1, H0370: 1, H0491: 1, H0318: 1, H0566: 1, H0551: 1, T0004: 1, L0435: 1, L0769: 1, L4747: 1, L5566: 1, L0772: 1, L0644: 1, L0764: 1, L0773: 1, L0774: 1, L0775: 1, L0806: 1, L0807: 1, L0659: 1, L0809: 1, L0665: 1, L0743: 1, L0747: 1, L0756: 1, L0777: 1, L0759: 1 and L0601: 1.
HTFNO06	933989	118	2 - 562	2293	Val-18 to Glu-33.	L0794: 11, L0511: 11, L0748: 10, L0747: 8, L0499: 6, L0805: 6, L0509: 6, L0507: 5, L0502: 5, L0500: 5, L0766: 5, L0803: 5, L0508: 5, L0809: 5, L0751: 5, L0750: 5, L0752: 5, L0764: 4, L0662: 4, L0649: 4, L0493: 4, L0514: 4, H0670: 4, L0779: 4, H0445: 4, H0657: 3, H0036: 3, S0422: 3,

| L0504: 3, L0768: 3, |
| L0510: 3, L0789: 3, |
| H0659: 3, L0439: 3, |
| L0745: 3, L0749: 3, |
| H0656: 2, S0442: 2, |
| S0358: 2, S0444: 2, |
| S0360: 2, H0580: 2, |
| H0549: 2, H0486: 2, |
| H0687: 2, H0328: 2, |
| S0438: 2, L0505: 2, |
| L0775: 2, L0657: 2, |
| L0515: 2, L0518: 2, |
| H0658: 2, H0651: 2, |
| S0380: 2, H0696: 2, |
| S0406: 2, H0436: 2, |
| L0777: 2, L0755: 2, |
| L0758: 2, L0759: 2, |
| L0588: 2, L0605: 2, |
| H0423: 2, S0412: 2, |
| S0424: 2, H0686: 1, |
| S0116: 1, S0212: 1, |
| H0254: 1, H0255: 1, |
| S0418: 1, S0476: 1, |
| S6022: 1, H0431: 1, |
| H0497: 1, H0333: 1, |
| T0114: 1, H0635: 1, |
| H0421: 1, H0204: 1, |
| H0150: 1, H0081: 1, |
| H0047: 1, H0023: 1, |
| H0083: 1, H0615: 1, |

						H0039: 1, H0674: 1, L0455: 1, H0087: 1, H0059: 1, T0041: 1, T0042: 1, H0494: 1, H0509: 1, H0646: 1, S0002: 1, L0800: 1, L0644: 1, L0533: 1, L0804: 1, L0650: 1, L0774: 1, L0806: 1, L0655: 1, L0661: 1, L0659: 1, L0782: 1, L0519: 1, L0793: 1, L0664: 1, H0144: 1, L0438: 1, H0520: 1, H0547: 1, H0711: 1, H0660: 1, S0152: 1, S0032: 1, L0754: 1, L0731: 1, L0757: 1, L0592: 1, S0194: 1, H0543: 1, H0422: 1, L0600: 1 and H0352: 1.
HODFY08	935520	119	130 - 339	2294	Arg-40 to Gln-45.	L0803: 4, H0615: 2, S6028: 1, L0521: 1, L0662: 1, L0794: 1 and L0756: 1.
HRACK27	935717	120	3 - 1283	2295	Lys-121 to Arg-127.	H0039: 3, L0794: 2, H0650: 1, S0212: 1, S0358: 1, H0441: 1, H0587: 1, S0003: 1, H0494: 1, H0529: 1,

HRACW30	940639	121	7 - 786	2296	2p12	147200, 178640, 216900

S0358: 250, H0087: 131, S0376: 112, L0751: 93, H0445: 88, H0506: 87, L0599: 69, S0360: 67, H0672: 63, S0328: 63, S0116: 56, S0374: 55, H0597: 47, L0767: 47, L0744: 45, H0555: 44, H0486: 43, H0581: 35, H0040: 29, L0536: 29, L0535: 28, L0659: 26, H0658: 26, L0378: 24, L0546: 24, L0743: 24, H0255: 23, L0768: 23, H0264: 21, H0231: 20, H0085: 18, H0659: 18, L0607: 17, H0063: 16, S0330: 16, H0657: 15, L0785: 15, S0354: 15, H0647: 15, L0762: 15, S0372: 13, L0776: 13, H0421: 12, L0379: 11, S0446: 11, L0600: 11, L0663: 10, L0748: 10, H0595: 10, L0372: 9, L0648: 9, H0663: 8, L0766: 1, H0690: 1, H0539: 1, H0696: 1, H0555: 1, L0439: 1, L0779: 1 and S0242: 1.

	H0156: 8, H0108: 8,
	H0039: 8, H0622: 8,
	L0775: 8, L0375: 8,
	S0430: 7, H0254: 7,
	H0252: 7, H0090: 7,
	H0272: 7, L0655: 7,
	L0538: 7, L0754: 7,
	H0444: 7, H0004: 6,
	H0234: 6, H0188: 6,
	H0488: 6, L0523: 6,
	L0664: 6, H0656: 5,
	L0808: 5, H0662: 5,
	H0274: 5, H0251: 5,
	H0235: 5, L0646: 5,
	L0662: 5, L0526: 5,
	S0462: 5, H0677: 5,
	S0384: 5, H0664: 4,
	H0590: 4, H0591: 4,
	H0634: 4, H0646: 4,
	L0763: 4, L0770: 4,
	S0380: 4, S0432: 4,
	L0581: 4, H0650: 3,
	S0356: 3, S0408: 3,
	H0042: 3, L0774: 3,
	L0547: 3, L0783: 3,
	H0684: 3, S0404: 3,
	L0777: 3, S0434: 3,
	H0671: 2, S0442: 2,
	S0444: 2, H0489: 2,
	H0485: 2, H0427: 2,

H0575: 2, H0037: 2,
T0071: 2, H0204: 2,
H0232: 2, H0050: 2,
H0015: 2, H0271: 2,
H0068: 2, S0382: 2,
S0464: 2, H0538: 2,
L0369: 2, L0627: 2,
L0387: 2, L0633: 2,
L0657: 2, L0518: 2,
L0666: 2, L0665: 2,
S0378: 2, L0758: 2,
H0343: 2, S0458: 2,
UNKWN: 2, H0352: 2,
H0186: 1, H0583: 1,
L0760: 1, H0125: 1,
H0676: 1, H0619: 1,
H0549: 1, H0101: 1,
H0635: 1, L0021: 1,
H0025: 1, H0120: 1,
S0182: 1, H0596: 1,
H0054: 1, H0086: 1,
H0045: 1, H0350: 1,
H0014: 1, H0510: 1,
H0375: 1, T0023: 1,
H0111: 1, H0383: 1,
H0113: 1, H0376: 1,
H0477: 1, H0487: 1,
H0059: 1, T0004: 1,
H0396: 1, S0352: 1,
S0370: 1, H0641: 1,

HOFOC32	941969	122	3 - 1502	2297	Thr-1 to Pro-6, Pro-57 to Thr-63, Arg-110 to Asp-115, Lys-147 to Pro-152, Met-221 to Cys-228, Tyr-254 to Cys-261, Lys-286 to Gly-295, Thr-315 to Gly-325, Ala-351 to Ser-356, Ile-380 to Gln-387, Gly-409 to Arg-419, Val-421 to Val-428.	AR053: 15, AR089: 14, AR033: 10, AR039: 9, AR096: 9, AR060: 9, AR055: 8, AR104: 7, AR061: 6 H0415: 1, H0438: 1, H0486: 1, H0581: 1, S0250: 1, H0616: 1, H0494: 1 and L0659: 1.	20q13.1-13.3	118504, 118504, 131242, 256540, 600281, 600281, 602235
					S0472: 1, H0652: 1, S0326: 1, H0517: 1, L0764: 1, L0765: 1, L0773: 1, L0766: 1, L0499: 1, L0376: 1, L0806: 1, L0527: 1, L0517: 1, L0542: 1, L0384: 1, L0529: 1, H0666: 1, H0579: 1, S0350: 1, H0134: 1, H0214: 1, S0406: 1, H0576: 1, H0478: 1, S0322: 1, L0747: 1, L0779: 1, L0780: 1, L0755: 1, S0394: 1, S0011: 1 and S0456: 1.			
HTTDM15	942511	123	2 - 670	2298	Glu-181 to Pro-189, Lys-211 to Arg-217.	AR052: 12, AR055: 11, AR053: 10, AR089:		

						9, AR033: 8, AR096: 8, AR060: 8, AR061: 7, AR104: 5, AR039: 5 L0748: 4, H0441: 2, H0333: 2, H0670: 2, H0660: 2, L0439: 2, L0747: 2, L0601: 2, S0218: 1, H0650: 1, H0656: 1, H0254: 1, H0255: 1, H0013: 1, H0327: 1, H0266: 1, H0070: 1, H0040: 1, T0042: 1, L0809: 1, L0790: 1, L0792: 1, H0689: 1, H0435: 1, H0134: 1, L0741: 1, L0759: 1 and S0042: 1.
HOVAY63	944031	124	589 - 449	2299	Lys-30 to His-47.	AR039: 13, AR104: 7, AR053: 6, AR089: 6, AR096: 6, AR052: 5, AR060: 5, AR033: 4, AR055: 4, AR061: 3 H0428: 3, H0545: 1 and L0754: 1.
HDPFY41	946502	125	597 - 2024	2300	Trp-2 to Ile-8, Cys-31 to Asp-39, Glu-54 to Ser-61, Gln-63 to Lys-70, Arg-79 to Arg-85,	AR089: 19, AR096: 18, AR039: 11, AR053: 7, AR060: 6, AR055: 6, AR052: 2, AR033: 1, AR061: 1, AR104: 1, AR052: 1,

					Ser-134 to His-143, Asn-145 to Thr-150, Ser-155 to Thr-168, Asp-198 to His-203, Phe-205 to Asp-234, Pro-238 to Asn-252, Phe-260 to Val-281, Pro-292 to Leu-314, Thr-317 to Ala-322, Lys-335 to His-342.	0 L0439: 4, L0756: 4, H0616: 3, L0766: 3, L0803: 3, L0777: 3, H0662: 2, H0428: 2, L0665: 2, H0547: 2, L0602: 2, L0779: 2, L0731: 2, H0624: 1, S6024: 1, S0114: 1, H0661: 1, S0356: 1, L0717: 1, H0409: 1, H0486: 1, S0003: 1, H0615: 1, S0036: 1, H0163: 1, S0426: 1, L0662: 1, L0649: 1, L0650: 1, L0375: 1, L0806: 1, L0655: 1, L0661: 1, L0659: 1, L0791: 1, L0792: 1, L0666: 1, H0144: 1, H0658: 1, H0672: 1, S0152: 1, H0521: 1, L0754: 1, L0759: 1, L0591: 1, S0011: 1 and H0008: 1.
HCOPB92	948608	126	99 - 260	2301	Tyr-37 to Ser-47.	H0670: 2
HBJHO83	948708	127	171 - 389	2302	His-1 to Phe-8.	H0318: 1, H0150: 1 and L0385: 1.
HWMEO44	948719	128	3 - 1343	2303	Met-1 to Leu-7, Ile-21 to Gln-33,	H0622: 2, H0422: 2, S0358: 1, H0497: 1,

| HFXJA96 | 949001 | 129 | 1 - 240 | 2304 | Pro-48 to Glu-53, His-66 to Asn-71, Asp-107 to Glu-118, Val-122 to Leu-133, Gly-185 to Gly-194, Thr-249 to Ser-258, Lys-310 to Lys-328, Arg-367 to Phe-375, Ser-377 to Ala-382, Gln-389 to Trp-395. | H0039: 1, H0056: 1, L0662: 1, H0666: 1, L0596: 1 and S0242: 1. | AR039: 36, AR052: 33, AR053: 19, AR104: 18, AR096: 17, AR033: 15, AR089: 13, AR061: 11, AR055: 11, AR060: 9 L0749: 3, L0757: 3, H0169: 2, L0769: 2, L0805: 2, L0754: 2, L0759: 2, H0685: 1, S0282: 1, L0717: 1, H0428: 1, H0068: 1, S0422: 1, L0648: 1, L0521: 1, L0794: 1, L0803: 1, L0776: 1, L0656: 1, L0809: 1, L0790: 1, L0665: 1, S0148: 1, L0438: 1, H0659: 1, H0648: 1, L0748: 1, L0747: 1, |

HTLGV19	949574	130	3 - 758	2305	Tyr-10 to Gly-19, Pro-55 to Lys-72, Glu-89 to Ala-95, Asp-107 to Gly-113, Arg-140 to Thr-149.
					L0750: 1, L0752: 1, H0543: 1 and S0412: 1. AR061: 4, AR096: 3, AR089: 3, AR055: 3, AR060: 2, AR104: 2, AR039: 2, AR033: 1, AR053: 1 H0555: 2, S0040: 1, S0444: 1, H0619: 1, H0618: 1, H0620: 1, H0284: 1 and H0063: 1.
HMSAC18	950257	131	1214 - 297	2306	AR052: 11, AR089: 5, AR053: 5, AR096: 4, AR060: 4, AR061: 4, AR039: 4, AR033: 3, AR055: 3, AR104: 3 S0007: 3, L0758: 3, S0382: 2, L0805: 2, L0776: 2, H0666: 2, L0748: 2, S6024: 1, H0341: 1, H0331: 1, H0628: 1, H0038: 1, S0002: 1, L0770: 1, L0662: 1, L0766: 1, L0522: 1, L0659: 1, L0663: 1, H0519: 1, H0659: 1, L0602: 1, L0754: 1, L0749: 1, L0779: 1 and L0731: 1.
HAPRB43	950475	132	3 - 536	2307	Phe-25 to Lys-31, AR060: 10, AR055: 6,

HCCMD55	956895	133	199 - 17	2308	Gln-7 to Lys-23, Gln-49 to Glu-54.	AR055: 3, AR089: 3, AR053: 2, AR060: 2, AR039: 2, AR061: 1, AR033: 1, AR096: 1, AR104: 1, AR052: 0 S0358: 13, H0617: 8, S0444: 4, S0408: 2, S0374: 2, H0484: 1, S0376: 1, S0360: 1, S0410: 1, H0618: 1, H0231: 1, H0615: 1, S0368: 1, H0606: 1,
					Pro-60 to Lys-82, Tyr-122 to Asp-131, Lys-137 to Leu-144.	AR096: 6, AR061: 5, AR089: 4, AR033: 3, AR104: 3, AR052: 3, AR039: 3, AR053: 3 L0595: 7, L0803: 4, L0599: 4, S0356: 2, H0652: 2, L0771: 2, L0756: 2, L0779: 2, S0376: 1, H0486: 1, H0013: 1, H0575: 1, H0024: 1, H0356: 1, H0328: 1, L0369: 1, L0642: 1, L0794: 1, L0804: 1, L0809: 1, L0663: 1, L0665: 1, H0670: 1, H0648: 1, S0330: 1, L0752: 1, S0434: 1 and H0506: 1.

HKBAL08	958219	134			2309	S0438: 1, H0647: 1, L0762: 1, L0772: 1, L0764: 1, L0376: 1, L0493: 1, L0783: 1, L0530: 1, H0659: 1, H0670: 1, H0648: 1, H0672: 1 and L0758: 1.		
HKADF15	960658	135	108 - 1	1 - 1551	2310	Leu-28 to Phe-35. Ala-3 to Gly-12, Gly-23 to Ser-46, Arg-91 to Gly-97, Val-105 to Ala-116, Ser-173 to His-180, Gly-190 to Tyr-206, Lys-280 to Lys-285, Arg-347 to Asp-352, Glu-403 to Lys-410, Ser-430 to Phe-442.	10q25.3-q26.2	263700, 601969, 601969

Additional (HKADF15): L0747: 24, L0754: 18, H0309: 12, H0545: 12, H0031: 12, L0439: 11, H0428: 10, L0755: 10, H0251: 9, S0126: 9, L0744: 8, L0757: 8, L0588: 8, S0360: 7, S0010: 7, S0051: 7, H0252: 7, H0135: 7, L0361: 7, S0212: 6, H0544: 6, H0687: 6, H0494: 6, L0438: 6, H0658: 6, L0748: 6, L0752: 6, L0591: 6, H0662: 5, L0731: 5, L0759: 5, S0192: 5, S0040: 4, S0222: 4, H0081: 4, H0024: 4, H0644: 4, H0124: 4, H0551: 4, L0662: 4, L0659: 4, L0565: 4, L0751: 4, L0750: 4,

L0599: 4, S0194: 4, H0486: 3, H0013: 3, T0006: 3, H0628: 3, H0316: 3, H0163: 3, L0770: 3, L0768: 3, L0775: 3, L0809: 3, H0670: 3, H0672: 3, L0603: 3, S0356: 2, S0358: 2, S0046: 2, H0455: 2, H0586: 2, H0587: 2, H0575: 2, H0318: 2, H0123: 2, H0012: 2, H0188: 2, S0250: 2, S0003: 2, S0214: 2, T0023: 2, H0553: 2, T0067: 2, L0351: 2, L0763: 2, L0771: 2, L0774: 2, L0651: 2, L0783: 2, L0666: 2, H0689: 2, H0660: 2, H0651: 2, S0330: 2, S0378: 2, S0206: 2, L0749: 2, S0031: 2, L0590: 2, L0601: 2, H0624: 1, S0342: 1, S0180: 1, S0400: 1, L0005: 1, S0376: 1, H0619: 1, H0645: 1, S0300: 1, L0717: 1, H0406: 1,

H0437: 1, H0261: 1,
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H0706: 1, S0346: 1,
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T0010: 1, H0355: 1,
H0510: 1, H0266: 1,
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H0039: 1, L0142: 1,
H0606: 1, H0032: 1,
S0366: 1, S0038: 1,
L0564: 1, S0448: 1,
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L0631: 1, L0500: 1,
L0769: 1, L0372: 1,
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HOGES55	961337	136	107 - 1483	2311	Ser-14 to Ser-23, His-30 to Ser-45, Gly-55 to Arg-67, Leu-71 to Leu-76, Leu-97 to Glu-102, Ser-118 to Pro-129, Pro-159 to Ala-179, Leu-189 to Ser-204.	L0803: 4, L0663: 3, S0420: 2, L0666: 2, H0435: 2, L0748: 2, L0777: 2, S0116: 1, S0132: 1, H0370: 1, L0021: 1, S0422: 1, L0664: 1, H0658: 1, S0328: 1, L0749: 1, S0436: 1 and L0097: 1.
HKZAJ14	961458	137	135 - 1028	2312	Asn-4 to Lys-9, Arg-37 to Pro-42, Pro-79 to Ile-91, Asp-144 to Trp-155, Asp-189 to Gln-194, Ser-199 to Ser-204,	L0777: 3, L0754: 2, H0689: 1, H0660: 1 and L0755: 1.

HLHAE14	962362	138	1915 - 1826	2313	Leu-208 to Asn-214, Leu-225 to Leu-230, Thr-234 to Lys-245, Asn-251 to Leu-260, Glu-285 to Asp-290. Gly-15 to Glu-26.	L0748: 2, L0749: 2, H0024: 1 and H0051: 1.		
HBCJN16	965190	139	2 - 346	2314	Pro-15 to Arg-20, Leu-31 to Asp-36, Gly-50 to Glu-65, Phe-74 to Gly-81.			
HCGAF29	965372	140	2 - 1660	2315	Ser-1 to Gly-9, Ile-50 to Thr-55.	H0449: 1, H0393: 1, H0691: 1, H0547: 1 and H0711: 1.	1p12-p13	102770, 188540, 600234, 601414, 601691, 601691, 601691, 601691, 601718, 602094
HAHEF81	967634	141	716 - 339	2316		L0774: 3, L0809: 2, H0483: 1, H0306: 1, H0599: 1, H0618: 1, H0083: 1, H0644: 1, H0617: 1, H0606: 1, H0087: 1, L0369: 1, L0763: 1, L0643: 1, L0662: 1, L0794: 1, L0804: 1, L0790: 1,		

HBJAB02	967807	142	2 - 1267	2317	Val-35 to Leu-44, Gln-60 to Arg-67, Glu-72 to Asn-84, Glu-131 to Cys-152, Tyr-162 to Gly-175, Gly-184 to Gly-189, Ser-191 to Gly-223, Asp-261 to Arg-266, Asn-270 to Glu-275, Gln-282 to His-287, Tyr-302 to Asn-310, Lys-321 to Arg-327, Lys-330 to Ala-339, Lys-385 to Gly-391, Arg-402 to Lys-422.	L0665: 1, H0658: 1, H0696: 1, L0748: 1, L0780: 1 and L0757: 1. L0794: 3, H0255: 2, H0318: 2, H0251: 2, L0764: 2, L0628: 2, L0665: 2, H0658: 2, L0361: 2, H0265: 1, H0685: 1, H0657: 1, H0483: 1, S0420: 1, S0358: 1, S0132: 1, S0222: 1, T0082: 1, H0150: 1, H0083: 1, S0214: 1, H0252: 1, H0628: 1, T0041: 1, S0344: 1, H0529: 1, L0520: 1, L0535: 1, L0662: 1, L0387: 1, L0375: 1, L0518: 1, L0666: 1, L0663: 1, H0519: 1, H0670: 1, H0660: 1, L0747: 1, L0777: 1, L0601: 1, S0276: 1, H0423: 1 and H0422: 1.	5q23.3-q31.2 — 121050, 131400, 153455, 159000, 179095, 180071, 181460, 192974, 192974, 600807, 601596, 602089
HOUCR01	968171	143	2 - 994	2318	Leu-98 to Cys-107, Ala-135 to Ala-142, Pro-233 to Lys-238, Gln-246 to Ala-257, Ser-294 to His-302.	AR033: 7, AR104: 7, AR055: 4, AR060: 3, AR096: 3, AR089: 3, AR061: 3, AR053: 2, AR052: 2, AR039: 1	

HDTIG18	968454	144	334 - 1011	2319		2q32.1	600258, 602087
					L0766: 2, L0776: 2, L0438: 2, S0114: 1, S0007: 1, H0393: 1, S0222: 1, H0486: 1, H0009: 1, H0012: 1, H0014: 1, H0083: 1, H0687: 1, S0003: 1, H0628: 1, T0067: 1, H0100: 1, S0344: 1, H0521: 1, S0032: 1, L0748: 1, L0740: 1,		
				Arg-1 to Gly-8, Pro-10 to Ser-72, Thr-80 to Gln-86, Pro-96 to Ala-102, Ser-137 to Val-146, Leu-207 to Asp-214, Gln-219 to Thr-226.			

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HBLGD30	968949	145	3951 - 1765	2320	Glu-20 to Lys-33, Ser-96 to His-109, Asn-147 to Val-166, Glu-188 to Ala-194, Ala-231 to Lys-240, Ala-267 to Lys-283, Met-291 to Gly-297, Arg-332 to Thr-338, Thr-365 to Tyr-377, Gln-381 to Ser-389, Glu-406 to Lys-417, Arg-462 to Glu-467, Ile-525 to Asp-535, Leu-595 to Glu-615, Phe-667 to Tyr-675, Gln-722 to Gly-729.	3q23-q25	H0574: 6, L0362: 6, H0510: 5, L0666: 5, L0665: 4, S0358: 3, H0670: 3, H0013: 2, H0421: 2, H0046: 2, S0438: 2, L0775: 2, L0746: 2, L0756: 2, L0581: 2, H0431: 1, H0004: 1, H0014: 1, H0015: 1, S0338: 1, S0003: 1, L0456: 1, S0440: 1, L0770: 1, L0803: 1, L0525: 1, L0607: 1, L0664: 1, H0593: 1, H0683: 1, H0658: 1, L0755: 1 and S0276: 1. L0745: 1, L0746: 1, L0750: 1, L0779: 1, L0752: 1, L0753: 1, L0755: 1, L0757: 1, S0026: 1, S0276: 1 and H0543: 1. 106165, 110100, 117700, 117700, 150210, 169600, 180380, 180380, 180380, 203500, 222900, 276902, 601199, 601199, 601199, 601682
HFIHK04	969387	146	580 - 825	2321	Pro-16 to Pro-21, Ser-33 to Gly-38.		L0747: 5, H0318: 3, H0617: 3, L0749: 3, L0776: 2, H0483: 1, H0615: 1, H0039: 1, L0055: 1, L0769: 1, L0521: 1, L0766: 1, L0375: 1, L0809: 1,

HODIL24	969841	147	7 - 798	2322	H0520: 1, H0689: 1, H0672: 1, S0152: 1, L0750: 1, L0608: 1 and S0194: 1. H0615: 6, L0766: 3, L0779: 2, L0777: 2, H0556: 1, S0222: 1, H0438: 1, H0492: 1, H0013: 1, H0156: 1, H0052: 1, H0561: 1, S0440: 1, S0150: 1, H0538: 1, L0369: 1, L0371: 1, L0769: 1, L0805: 1, L0659: 1, L0647: 1, S0374: 1, H0518: 1, S0152: 1, L0740: 1, L0756: 1, L0755: 1, L0731: 1, H0445: 1, S0026: 1 and H0653: 1.
HE8NQ16	970046	148	2 - 1105	2323	L0439: 6, L0756: 5, L0779: 5, L0777: 5, L0759: 5, L0776: 4, H0620: 3, L0747: 3, L0755: 3, S0442: 2, S0358: 2, H0615: 2, L0770: 2, L0768: 2, H0144: 2, S0374: 2, L0748: 2, L0740: 2, L0745: 2, L0750: 2,

HOFMS34	973010	149	27 - 1019	2324	
				Gly-9 to Gln-19, Pro-36 to Gly-41, Ala-112 to Ala-123, Asp-151 to Arg-157, Ala-199 to Asp-211.	L0599: 2, S0134: 1, S0222: 1, H0642: 1, H0013: 1, H0156: 1, S0010: 1, H0052: 1, H0596: 1, H0083: 1, S6028: 1, H0687: 1, S0250: 1, S0003: 1, S0214: 1, H0428: 1, H0622: 1, H0644: 1, H0038: 1, H0269: 1, T0042: 1, H0646: 1, L0369: 1, L0762: 1, L0796: 1, L0800: 1, L0662: 1, L0794: 1, L0774: 1, L0775: 1, L0659: 1, L0783: 1, L0793: 1, H0683: 1, H0435: 1, H0648: 1, H0672: 1, S0328: 1, H0539: 1, S0380: 1, H0696: 1, S0044: 1, H0631: 1, L0749: 1, L0753: 1, L0757: 1, S0434: 1 and L0485: 1. AR053: 2, AR033: 2, AR089: 2, AR060: 2, AR096: 2, AR052: 1, AR061: 1, AR055: 1, AR039: 1, AR104: 0 H0415: 5

| HOFOB11 | 973505 | 150 | 3 - 293 | 2325 | Pro-70 to Cys-76. | AR096: 11, AR089: 6, AR053: 6, AR060: 5, AR104: 5, AR033: 3, AR039: 3, AR055: 2, AR061: 1, H0415: 2 | 1p31 | 180069, 180069, 180069, 201450, 248610, 600309, 601676, 602522 |
| HTLHN94 | 974667 | 151 | 306 - 812 | 2326 | His-8 to Gly-18. | AR039: 26, AR055: 18, AR033: 15, AR053: 14, AR052: 13, AR089: 12, AR060: 11, AR104: 11, AR096: 10, AR061: 8 H0521: 185, H0522: 75, H0046: 37, S0360: 25, H0580: 24, H0585: 22, H0575: 22, L0599: 21, H0657: 16, H0255: 15, H0486: 15, L0664: 15, H0641: 14, S0376: 12, H0581: 12, L0751: 12, H0650: 11, H0087: 10, S0002: 10, H0638: 9, H0264: 9, H0509: 9, L0769: 9, H0445: 9, H0656: 8, S0358: 8, H0617: 8, L0748: 8, L0750: 8, L0659: 7, H0658: 7, H0672: 7, | | |

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L0378: 2, L0518: 2,
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S0380: 2, S0044: 2,
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L0759: 2, S0260: 2,
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H0662: 1, H0306: 1,
H0125: 1, S0356: 1,
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S0216: 1, S0374: 1,
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H0666: 1, H0651: 1,

HLDRT31	975754	152	37 - 585	2327	AR061: 16, AR060: 7, AR039: 5, AR089: 4, AR096: 3, AR104: 2, AR033: 1, AR055: 1, AR053: 1 H0199: 2, H0246: 2, H0197: 1, H0510: 1 and H0144: 1. H0518: 1, H0479: 1, L0756: 1, L0779: 1, L0780: 1, H0343: 1, H0595: 1, L0588: 1, L0604: 1, L0697: 1, S0384: 1 and L0600: 1.
HWLHW86	975771	153	5 - 1186	2328	Ser-1 to Gly-16, Pro-26 to Gly-31, Thr-40 to Gln-46, Pro-59 to Ser-66, Pro-69 to Ser-80, Val-120 to Cys-126, Lys-157 to Gly-166, Gln-169 to Tyr-175, Arg-205 to Glu-212, His-230 to Leu-242, Gln-277 to Asn-285. 4q AR060: 12, AR039: 8, AR089: 7, AR096: 1, AR061: 1, AR033: 0, AR053: 0, AR055: 0 S0408: 32, S0444: 21, S0442: 20, S0360: 20, L0665: 19, S0406: 18, S0436: 18, S0358: 17, L0666: 17, S0440: 15, L0752: 13, L0663: 11, S0376: 10, S0374: 10, L0662: 9, L0646: 8, H0672: 8, L0596: 8, L0601: 8, S0354: 6, L0664: 6, H0648: 6, L0777: 6, L0774: 5,

S0404: 5, S0356: 4, L0771: 4, L0657: 4, H0659: 4, L0372: 3, L0522: 3, L0776: 3, L0659: 3, H0658: 3, H0696: 3, L0750: 3, L0779: 3, L0608: 3, H0615: 2, H0428: 2, H0169: 2, H0090: 2, H0059: 2, H0646: 2, L0640: 2, L0764: 2, L2269: 2, H0593: 2, H0670: 2, L0754: 2, L0759: 2, S0434: 2, L0599: 2, L0362: 2, H0506: 2, H0624: 1, H0686: 1, L0778: 1, H0661: 1, H0662: 1, H0489: 1, H0409: 1, H0592: 1, T0060: 1, H0575: 1, H0590: 1, H0596: 1, L0040: 1, H0597: 1, H0046: 1, H0012: 1, H0620: 1, H0014: 1, S6028: 1, H0328: 1, H0039: 1, H0622: 1, L0483: 1, H0494: 1, H0647: 1, H0538: 1, L0502: 1, L0763: 1, L0373: 1,

HOFNM53	976051	154	3 - 1589	2329	Val-9 to Glu-22, Leu-48 to Gln-53, Ser-64 to Asn-74, Pro-76 to Arg-83, Thr-118 to Gly-126.	L0644: 1, L0803: 1, L0650: 1, L0775: 1, L0805: 1, L0634: 1, L0636: 1, L0782: 1, L0809: 1, H0547: 1, H0689: 1, H0682: 1, H0683: 1, H0435: 1, H0660: 1, S0328: 1, S0378: 1, H0704: 1, L0758: 1, H0707: 1, S0026: 1 and S0460: 1. AR104: 6, AR089: 5, AR039: 4, AR060: 4, AR061: 1, AR053: 5, AR033: 5, AR055: 4, AR096: 3, AR052: 0 H0415: 4		
HDPSE86	976207	155	1 - 1344	2330	Pro-30 to Thr-35, Ala-81 to Pro-86, Gly-140 to Thr-151, Ala-157 to Gly-162, Arg-195 to Val-209, Arg-236 to Ser-245.	AR053: 17, AR089: 16, AR033: 12, AR060: 12, AR039: 12, AR096: 10, AR104: 9, AR055: 9, AR061: 9, H0424: 2, H0689: 2, H0318: 1, S0036: 1, L0665: 1, H0684: 1, L0521: 1 and H0555: 1.	12q23-q24	113100, 124200, 147440, 158590, 160781, 163950, 163950, 235800, 251170, 276710, 600175, 601517
HHFOE18	976216	156	1 - 1275	2331	Thr-1 to Thr-33.	L0659: 7, H0486: 4,		

HHFNH27	976968	157	11 - 604	2332	Asp-1 to Ser-12, Glu-15 to Ala-29, Glu-40 to Lys-56, Ile-131 to Asp-150, Leu-177 to Asp-183.	AR052: 169, AR096: 135, AR053: 92, AR089: 91, AR060: 83, AR033: 59, AR104: 54, AR039: 40, AR061: 37, AR055: 29 H0341: 9, H0657: 7, S0358: 4, H0251: 4, H0428: 4, L0748: 4, L0750: 4, H0445: 4, S0116: 3, H0333: 3, H0318: 3, T0041: 3, L0748: 4, L0747: 4, H0328: 3, L0800: 3, H0050: 2, H0135: 2, H0059: 2, L0771: 2, L0790: 2, L0750: 2, L0777: 2, L0759: 2, H0624: 1, H0170: 1, H0717: 1, H0663: 1, L0005: 1, H0619: 1, H0645: 1, H0455: 1, H0013: 1, S0010: 1, S6028: 1, H0039: 1, H0031: 1, H0598: 1, H0102: 1, L0598: 1, L0763: 1, L0761: 1, L0803: 1, L0791: 1, L0666: 1, L0565: 1, S0126: 1 and L0749: 1.	12q23-q24.1	124200, 147440, 160781, 181405, 235800, 261600, 261600, 600175, 601406, 601620, 601621

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T0004: 2, H0647: 2,
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H0576: 2, L0747: 2,
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S0378: 1, S0004: 1,
S0146: 1, S0027: 1,
S0028: 1, S0206: 1,
L0741: 1, L0439: 1,
L0740: 1, L0754: 1,

HMMBZ81	977264	158	551 - 357	2333		L0749: 1, L0756: 1, L0777: 1, L0731: 1, L0758: 1, L0581: 1, L0599: 1, L0608: 1, L0594: 1, L0603: 1, H0668: 1, H0665: 1, H0667: 1, S0194: 1, H0542: 1, H0423: 1, H0422: 1, S0424: 1 and H0506: 1.		
HSLGF32	977704	159	2 - 301	2334	Arg-1 to Arg-45, Glu-47 to Arg-77, Asp-79 to Ser-100.	H0444: 1 L0748: 6, L0777: 4, H0685: 2, L0599: 2, H0575: 1, S0010: 1, H0421: 1, H0169: 1, H0264: 1, H0413: 1, L0769: 1, L0646: 1, L0803: 1, L0653: 1, L0776: 1, L0792: 1, H0659: 1, H0658: 1, S3014: 1, S0028: 1, L0751: 1 and L0779: 1.		
HEEAH23	978593	160	1 - 123	2335		H0549: 1, S0222: 1, H0266: 1, H0428: 1 and S0370: 1.		
HODFU73	978812	161	179 - 652	2336	Gly-85 to His-97, Gly-125 to Gly-130.	L0519: 5, L0756: 5, L0731: 5, L0665: 4, L0717: 3, S0474: 3, L0794: 3, L0663: 3, H0547: 3, H0682: 3,	2p14-p13	203800, 602404

HNBUA49	978998	162	1399 - 353	2337	H0660: 3, H0615: 2, H0551: 2, L0650: 2, L0805: 2, L0659: 2, L0809: 2, L0666: 2, L0439: 2, L0740: 2, L0745: 2, L0750: 2, H0352: 2, H0411: 1, H0431: 1, H0590: 1, L0738: 1, H0015: 1, H0071: 1, S6028: 1, H0328: 1, H0688: 1, H0039: 1, H0622: 1, H0591: 1, H0264: 1, S0422: 1, L0638: 1, L0662: 1, L0803: 1, L0375: 1, L0657: 1, L0791: 1, L0664: 1, H0144: 1, L0352: 1, H0690: 1, H0658: 1, H0670: 1, H0666: 1, L0754: 1, L0746: 1, L0777: 1, L0755: 1 and S0412: 1.	L0754: 3, L0591: 3, H0659: 2, L0748: 2, H0663: 1, H0662: 1, S0354: 1, S0376: 1, L0021: 1, S6028: 1, H0616: 1, T0067: 1, S0422: 1, L0520: 1,

HVVDU73	979346	163	2 - 1603	2338	Val-1 to Gly-7, Ala-10 to Ser-15, Ala-32 to Ala-75, Pro-93 to Asp-101, Arg-107 to Gln-117, Glu-133 to Ser-138, Ile-157 to Pro-170, Arg-181 to Glu-192, Ser-200 to Glu-209, Glu-239 to Val-249, Glu-287 to Glu-305, Ala-320 to Arg-328, Pro-363 to Arg-389, Lys-396 to Leu-406, Arg-433 to Gly-442, Ser-470 to Asn-481, Arg-498 to Ser-528.	H0046: 9, H0494: 6, S0358: 4, H0622: 2, H0662: 1, S0356: 1, H0549: 1, H0575: 1, H0081: 1, H0646: 1, L0761: 1, L0800: 1, H0672: 1, S0152: 1, H0521: 1, H0555: 1, L0748: 1, L0777: 1 and L0601: 1.	L0769: 1, L0764: 1, L0766: 1, L0653: 1, L0659: 1, L0529: 1, L0666: 1, L0663: 1, L0664: 1, L0665: 1, L0565: 1, H0648: 1, H0522: 1, H0436: 1, L0439: 1, L0756: 1, L0755: 1, L0758: 1, H0445: 1 and H0543: 1.	1q25.1-q32.3	145001, 145260, 150292, 208250, 600759, 600995, 601652, 601975
HHESX72	979468	164	136 - 480	2339	Tyr-28 to Ser-34, Leu-76 to Gln-83.	L0748: 3, S0380: 2, H0581: 1, H0477: 1, S0126: 1 and H0543: 1.			

HOCPY88	979547	165	136 - 939	2340	Arg-38 to Lys-44, Lys-65 to Pro-72, Pro-96 to Tyr-102, Val-117 to Tyr-124, Leu-140 to Gly-154, Pro-167 to Trp-174, Val-180 to Tyr-185, Pro-191 to Tyr-196, Pro-199 to Thr-204, Gln-238 to Ala-244, Val-255 to Val-262.	H0553: 2, H0519: 2, L0731: 2, S0192: 2, S0134: 1, H0306: 1, H0375: 1, H0292: 1, S0144: 1, L0794: 1, L0766: 1, L0775: 1, L0809: 1, H0144: 1, S0126: 1, H0660: 1, H0672: 1, H0521: 1 and S0260: 1.	2p13	203800, 602404
HOGDC64	979666	166	164 - 769	2341		H0521: 53, S0002: 17, L0809: 13, S0360: 12, H0522: 12, H0580: 11, L0766: 11, S0426: 10, S0278: 9, H0618: 9, L0758: 8, H0556: 7, H0581: 7, L0439: 7, L0731: 7, H0253: 6, H0038: 6, L0771: 6, L0794: 6, L0805: 6, L0518: 6, L0666: 6, L0748: 6, H0553: 5, L0764: 5, L0659: 5, L0779: 5, H0265: 4, H0650: 4, S0408: 4, S0344: 4, L0667: 4, L0776: 4, L0759: 4, L0596: 4, L0604: 4, L0362: 4, H0486: 3,	17q21-q23	106180, 109270, 109270, 109270, 109270, 109270, 113705, 113705, 138700, 139250, 144200, 148065, 148066, 148066, 148067, 148067, 148069, 148080, 150200,

154275, 168610, 171190, 176705, 176960, 185800, 200350, 221820, 232200, 249000, 252920, 253250, 600119, 600119, 601363, 601844	

H0575: 3, H0052: 3, H0457: 3, H0674: 3, H0616: 3, L0664: 3, H0710: 3, L0747: 3, S0026: 3, H0542: 3, H0543: 3, S0134: 2, S0218: 2, S0444: 2, H0619: 2, S0222: 2, H0438: 2, H0592: 2, S0010: 2, S0474: 2, H0123: 2, H0014: 2, H0083: 2, H0673: 2, T0067: 2, L0638: 2, L0372: 2, L0646: 2, L0768: 2, L0804: 2, L0774: 2, L0655: 2, L0783: 2, H0144: 2, H0697: 2, H0702: 2, L0438: 2, H0658: 2, H0518: 2, L0743: 2, L0744: 2, L0749: 2, L0756: 2, L0608: 2, L0601: 2, H0624: 1, H0394: 1, H0685: 1, S6024: 1, H0583: 1, L0785: 1, S0282: 1, H0663: 1, H0306: 1, H0589: 1, S0442: 1, S0358: 1, S0376: 1, H0676: 1, H0610: 1,

H0586: 1, H0587: 1, H0497: 1, H0632: 1, H0257: 1, H0559: 1, H0427: 1, H0122: 1, S0182: 1, H0421: 1, H0309: 1, H0596: 1, H0597: 1, L0471: 1, H0012: 1, H0015: 1, S6028: 1, H0179: 1, H0271: 1, S0312: 1, H0622: 1, L0055: 1, H0708: 1, H0598: 1, S0036: 1, H0135: 1, H0040: 1, H0379: 1, T0041: 1, S0440: 1, H0633: 1, S0142: 1, L0369: 1, L0763: 1, L0631: 1, L0770: 1, L0769: 1, L0761: 1, L0800: 1, L0662: 1, L0364: 1, L0803: 1, L0775: 1, L0784: 1, L0378: 1, L0606: 1, L0527: 1, L0657: 1, L0558: 1, L0545: 1, L0789: 1, L0791: 1, L0663: 1, L0665: 1, H0699: 1, H0703: 1, S0374: 1, H0689: 1, H0684: 1, H0435: 1,

HSIEA14	980139	167	456 - 683	2342	Pro-46 to Lys-53.	AR039: 4, AR096: 1, AR053: 1, AR060: 1, AR089: 1, AR033: 1, AR061: 1, AR055: 0, AR104: 0, H0036: 1, H0659: 1, H0660: 1, H0672: 1, S0380: 1, H0696: 1, S0188: 1, H0214: 1, S0406: 1, H0555: 1, S0118: 1, L0741: 1, L0750: 1, L0777: 1, S0260: 1, H0445: 1, L0485: 1, S0011: 1, H0423: 1 and H0422: 1.		
HSPSY43	980269	168	883 - 1659	2343	Leu-32 to Glu-41, Asn-67 to His-72, Glu-96 to Thr-105, Phe-122 to Leu-130, Glu-151 to Glu-157, Val-165 to Gly-171, Arg-185 to Ile-196, Ser-205 to Leu-216, Leu-220 to Ala-225, Tyr-235 to Leu-243.	L0439: 17, H0013: 16, T0010: 13, S0010: 10, H0052: 10, L0754: 10, S0222: 9, L0743: 8, S0001: 7, H0644: 6, H0144: 6, L0662: 5, L0659: 5, H0547: 5, H0658: 5, L0742: 5, L0591: 5, H0657: 4, S0007: 4, H0441: 4, L0351: 4, S0344: 4, L0741: 4, S0046: 3, H0351: 3, H0575: 3, S0346: 3, H0178: 3,	9q33-q34	125270, 125270, 128100, 137350, 146150, 191100, 215700, 223360, 223900, 253800, 253800, 268900, 601850

S6028: 3, S0250: 3,
S0036: 3, H0090: 3,
H0040: 3, L0543: 3,
L0438: 3, H0539: 3,
L0745: 3, L0750: 3,
S0031: 3, H0445: 3,
L0596: 3, H0542: 3,
S6024: 2, H0294: 2,
T0049: 2, H0650: 2,
H0656: 2, S0212: 2,
S0282: 2, H0255: 2,
H0662: 2, H0619: 2,
S0300: 2, H0587: 2,
T0082: 2, H0618: 2,
S0049: 2, H0194: 2,
H0123: 2, H0012: 2,
H0266: 2, H0615: 2,
H0553: 2, L0455: 2,
H0163: 2, H0264: 2,
H0488: 2, S0038: 2,
S0112: 2, L0372: 2,
L0766: 2, L0649: 2,
L0664: 2, H0520: 2,
H0519: 2, L0355: 2,
S0406: 2, S0027: 2,
L0744: 2, L0748: 2,
L0740: 2, L0751: 2,
S0434: 2, L0588: 2,
L0605: 2, L0599: 2,
L0361: 2, H0423: 2,

H0422: 2, H0506: 2,
H0352: 2, H0170: 1,
H0556: 1, H0686: 1,
S0298: 1, H0669: 1,
H0663: 1, H0638: 1,
S0418: 1, S0442: 1,
S0354: 1, S0360: 1,
S0468: 1, H0208: 1,
S0132: 1, H0261: 1,
H0549: 1, H0370: 1,
H0392: 1, H0438: 1,
H0592: 1, H0643: 1,
T0039: 1, H0427: 1,
H0156: 1, H0253: 1,
H0318: 1, H0581: 1,
H0251: 1, H0597: 1,
H0546: 1, H0046: 1,
H0457: 1, H0150: 1,
H0009: 1, H0050: 1,
L0471: 1, H0620: 1,
H0015: 1, N0007: 1,
H0201: 1, S0048: 1,
S0388: 1, S0051: 1,
H0083: 1, H0267: 1,
H0271: 1, H0398: 1,
H0188: 1, H0328: 1,
H0039: 1, H0622: 1,
T0006: 1, H0604: 1,
H0424: 1, H0031: 1,
H0166: 1, L0456: 1,

HSXBH24	981029	169	220 - 2199	2344		
				Ser-11 to Gly-21, Cys-47 to Leu-61, Ser-82 to Tyr-88, Cys-182 to Tyr-187, Trp-268 to Asp-285.	AR089: 2, AR060: 2, AR033: 2, AR096: 1, AR061: 1, AR039: 0, AR104: 0, AR055: 0, AR053: 0 H0261: 1, H0370: 1, H0559: 1, H0013: 1,	H0124: 1, H0038: 1, H0087: 1, H0551: 1, H0272: 1, H0412: 1, T0042: 1, H0494: 1, H0560: 1, H0633: 1, L0598: 1, L0369: 1, L0763: 1, L0769: 1, L0630: 1, L0646: 1, L0521: 1, L0794: 1, L0629: 1, L0517: 1, L0382: 1, L0809: 1, L0789: 1, L0792: 1, L0666: 1, L0665: 1, S0216: 1, S0122: 1, H0683: 1, H0684: 1, S0330: 1, H0709: 1, H0521: 1, H0555: 1, H0436: 1, H0576: 1, S0028: 1, L0746: 1, L0753: 1, L0731: 1, H0707: 1, L0485: 1, L0366: 1, S0276: 1 and H0543: 1.

HOFAE61	981108	170	2 - 505	2345	Lys-10 to Gly-21.	H0510: 1, S0036: 1, H0100: 1, L0771: 1, L0659: 1, H0666: 1, L0779: 1 and L0758: 1.
HCFOF82	981272	171	2 - 901	2346	Trp-1 to Lys-6.	H0415: 1 and H0414: 1. AR096: 3, AR033: 2, AR053: 2, AR089: 2, AR039: 2, AR060: 2, AR104: 1, AR061: 1, AR055: 1, AR052: 0 L0766: 3, L0777: 3, L0768: 2, L0748: 2, L0757: 2, L0759: 2, L0596: 2, T0060: 1, S0010: 1, H0251: 1, H0594: 1, S0214: 1, H0328: 1, H0615: 1, H0428: 1, H0674: 1, H0040: 1, H0412: 1, L0763: 1, L0803: 1, L0653: 1, L0666: 1, L0664: 1, S0028: 1, L0751: 1, H0423: 1 and H0506: 1.
HOCMT79	981309	172	421 - 1431	2347	Thr-1 to Asp-12, Arg-27 to Asp-35, Arg-84 to Asp-89, Leu-93 to Thr-99, Pro-104 to Lys-113,	5p H0618: 12, H0052: 6, L0439: 6, H0253: 5, L0665: 4, H0013: 3, L0766: 3, L0775: 3, L0664: 3, L0742: 3,

Thr-129 to Asp-137, Leu-265 to Thr-288.	L0748: 3, L0758: 3, H0556: 2, H0685: 2, S0040: 2, H0069: 2, H0599: 2, H0581: 2, H0327: 2, H0545: 2, H0571: 2, H0617: 2, H0135: 2, H0494: 2, H0509: 2, L0783: 2, L0809: 2, L0438: 2, H0660: 2, L0754: 2, L0599: 2, H0422: 2, H0265: 1, L0785: 1, H0484: 1, S0418: 1, S0420: 1, H0580: 1, S0045: 1, H0392: 1, H0600: 1, H0574: 1, H0256: 1, L0622: 1, H0486: 1, H0250: 1, H0575: 1, H0251: 1, H0544: 1, H0050: 1, T0010: 1, H0188: 1, H0213: 1, H0038: 1, H0616: 1, H0087: 1, H0561: 1, S0382: 1, H0132: 1, L0762: 1, L0770: 1, L0638: 1, L0761: 1, L0648: 1, L0662: 1, L0803: 1, L0651: 1, L0806: 1, L0659: 1, L0791: 1,

HKAEI03	981319	173	1 - 405	2348	......	H0682: 1, H0539: 1, H0518: 1, H0521: 1, H0436: 1, L0741: 1, L0743: 1, L0757: 1, S0031: 1, L0595: 1, H0542: 1 and H0423: 1. H0620: 1, H0615: 1, H0063: 1 and H0494: 1.	1p11.1-13.1	102770, 201810, 601414, 601691, 601691, 601691, 601691, 601718, 602094
HOCPO31	981593	174	330 - 470	2349		H0087: 2, H0660: 1 and H0672: 1.		
HAOTG88	981606	175	229 - 2	2350	Asn-1 to Lys-6.	H0686: 1, H0685: 1 and S0053: 1.	·	
HVCAH21	981768	176	2 - 616	2351	Ala-1 to Ala-12, Cys-57 to Tyr-65, Glu-76 to Asp-82, Arg-100 to Pro-105, Asp-110 to Pro-126, Cys-129 to Ala-139, Lys-147 to Pro-172, Pro-182 to Asp-188, Arg-199 to Met-205.	L0751: 6, L0588: 6, L0748: 5, L0758: 5, S0007: 4, S0438: 4, L0763: 4, L0776: 4, L0759: 4, L0604: 4, L0594: 4, L0362: 4, S0358: 3, S0410: 3, H0575: 3, H0617: 3, S0440: 3, L0775: 3, L0809: 3, S0374: 3, L0742: 3, H0656: 2,	8q13.3	214400, 600415, 601653, 601653, 602476

S0360: 2, S0278: 2,
L0622: 2, S0010: 2,
H0251: 2, H0408: 2,
T0023: 2, T0006: 2,
T0067: 2, H0509: 2,
L0646: 2, L0766: 2,
L0381: 2, L0774: 2,
L0806: 2, L0526: 2,
L0518: 2, L0665: 2,
H0689: 2, H0658: 2,
S0378: 2, H0710: 2,
L0754: 2, L0750: 2,
L0731: 2, L0590: 2,
L0591: 2, L0485: 2,
H0543: 2, H0265: 1,
S6024: 1, H0657: 1,
S0212: 1, H0661: 1,
H0663: 1, H0638: 1,
S0420: 1, S0354: 1,
S0376: 1, S0408: 1,
S0132: 1, H0393: 1,
H0282: 1, H0299: 1,
H0333: 1, H0643: 1,
H0574: 1, L0623: 1,
H0486: 1, T0060: 1,
H0250: 1, T0115: 1,
T0110: 1, H0530: 1,
H0012: 1, H0373: 1,
H0030: 1, H0553: 1,
H0673: 1, H0674: 1,

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5   L0809: 7, H0658: 6,
    L0748: 6, S0222: 5,
    L0794: 5, L0776: 5,
    L0756: 5, L0752: 5,
    L0731: 5, L0770: 4,
    L0662: 4, L0743: 4,
    L0439: 4, L0751: 4,
    L0754: 4, L0747: 4,
    L0759: 4, H0013: 3,
    L0769: 3, L0805: 3,
    L0789: 3, L0664: 3,
    L0740: 3, L0777: 3,
    L0753: 3, L0758: 3,
    H0333: 2, H0052: 2,
    H0545: 2, H0428: 2,
    L0483: 2, L0455: 2,
    H0509: 2, L0763: 2,
    L0771: 2, L0803: 2,
    L0804: 2, L0806: 2,
    L0527: 2, L0783: 2,
    L0666: 2, L0663: 2,
    S0152: 2, S0146: 2,
    L0744: 2, L0745: 2,
    L0603: 2, H0686: 1,
    S0116: 1, H0255: 1,
    S0418: 1, S0408: 1,
    H0645: 1, H0393: 1,
    L0717: 1, H0351: 1,
    H0370: 1, H0574: 1,

| HAOSJ58 | 981859 | 178 | 3 - 482 | 2353 | His-1 to Val-14. | L0740: 4, L0749: 4, L0794: 3, L0766: 3, H0686: 2, L0662: 2, L0747: 2, H0663: 1, S0420: 1, S0358: 1, L0717: 1, H0013: 1, L0638: 1, L0761: 1, L0364: 1, L0803: 1, L0657: 1, L0526: 1, | H0156: 1, H0599: 1, H0590: 1, H0253: 1, H0390: 1, S0049: 1, H0009: 1, H0178: 1, H0071: 1, T0010: 1, H0252: 1, H0615: 1, T0006: 1, H0033: 1, H0424: 1, H0032: 1, H0124: 1, S0142: 1, L0638: 1, L0761: 1, L0641: 1, L0768: 1, L0774: 1, L0775: 1, L0657: 1, L0636: 1, L0517: 1, L0518: 1, L0665: 1, H0144: 1, H0659: 1, H0670: 1, H0660: 1, H0696: 1, H0626: 1, S0432: 1, S0027: 1, L0742: 1, L0750: 1, L0757: 1 and S0011: 1. |

HOPJT48	981862	179	348 - 217	2354		L0787: 1, L0665: 1, L0438: 1, L0759: 1 and L0592: 1.
HCFAV61	981914	180	3 - 1091	2355	Arg-1 to Ile-7, Gly-22 to Lys-42, Ser-52 to Glu-59, Leu-80 to Asp-87, Lys-107 to Thr-115, Trp-123 to Glu-131, Tyr-148 to Glu-155.	H0685: 1, L0623: 1 and H0684: 1. L0766: 5, L0747: 4, L0750: 4, L0777: 4, S0046: 2, H0486: 2, L0769: 2, L0805: 2, H0547: 2, L0749: 2, L0752: 2, L0759: 2, L0590: 2, S0026: 2, H0624: 1, H0686: 1, H0341: 1, S0358: 1, S0360: 1, S0045: 1, H0549: 1, H0587: 1, L0157: 1, H0566: 1, H0057: 1, H0320: 1, H0051: 1, H0687: 1, S0003: 1, H0428: 1, H0090: 1, L0794: 1, L0774: 1, L0806: 1, L0653: 1, L0655: 1, L0657: 1, L0659: 1, L0791: 1, L4501: 1, L0666: 1, L0664: 1, H0701: 1, H0672: 1, S0328: 1, H0539: 1, S0380: 1, H0478: 1, L0780: 1, L0755: 1,

HPDWN44	981956	181	114 - 659	2356	
				Gln-79 to Tyr-86, Ile-96 to Ser-101, Pro-119 to Ser-126, Gln-162 to Gln-167.	H0150: 26, S0003: 24, 14 S0144: 14, S0278: 12, S0344: 12, L0748: 12, S0358: 10, H0046: 10, H0620: 10, S0214: 10, L0740: 9, H0521: 8, L0588: 8, H0545: 7, L0754: 7, H0575: 6, H0494: 6, S0126: 6, H0662: 5, H0031: 5, S0142: 5, L0752: 5, S0360: 4, H0309: 4, H0012: 4, H0687: 4, H0163: 4, H0038: 4, H0040: 4, H0672: 4, L0744: 4, L0755: 4, L0758: 4, L0599: 4, S0212: 3, H0580: 3, H0550: 3, T0082: 3, H0544: 3, H0024: 3, H0266: 3, H0428: 3, H0616: 3, T0067: 3, L0519: 3, L0532: 3, H0689: 3, S0380: 3, L0731: 3, S0026: 3, H0624: 2, S0040: 2, L0731: 1, L0758: 1, H0595: 1, L0592: 1, H0653: 1, H0665: 1 and H0422: 1.

H0255: 2, S0376: 2,
H0431: 2, H0331: 2,
H0427: 2, S0280: 2,
H0599: 2, S0010: 2,
H0581: 2, T0115: 2,
H0530: 2, H0375: 2,
L0483: 2, H0598: 2,
H0090: 2, H0264: 2,
H0412: 2, H0641: 2,
H0647: 2, L0774: 2,
L0666: 2, L0665: 2,
H0547: 2, H0682: 2,
H0658: 2, H0522: 2,
S0044: 2, S3012: 2,
S0027: 2, L0745: 2,
L0747: 2, L0750: 2,
L0757: 2, L0759: 2,
H0445: 2, S0194: 2,
L0600: 2, H0170: 1,
H0686: 1, S0114: 1,
H0583: 1, H0657: 1,
L0785: 1, H0341: 1,
S0282: 1, H0254: 1,
H0661: 1, H0638: 1,
S0348: 1, S0418: 1,
L0005: 1, S0356: 1,
S0354: 1, T0008: 1,
S0007: 1, H0208: 1,
S0046: 1, H0549: 1,
H0455: 1, H0497: 1,

H0574: 1, H0632: 1, H0486: 1, T0040: 1, T0060: 1, H0013: 1, H0069: 1, H0635: 1, H0156: 1, H0042: 1, H0036: 1, H0037: 1, S0346: 1, H0310: 1, H0251: 1, H0596: 1, H0597: 1, H0231: 1, H0050: 1, L0471: 1, H0099: 1, H0594: 1, H0267: 1, S0318: 1, H0364: 1, H0328: 1, H0622: 1, H0644: 1, H0674: 1, H0063: 1, H0268: 1, H0269: 1, H0059: 1, H0625: 1, S0440: 1, H0646: 1, H0649: 1, S0210: 1, L0762: 1, L0769: 1, L0796: 1, L0761: 1, L0773: 1, L0768: 1, L0364: 1, L0766: 1, L0803: 1, L0804: 1, L0653: 1, L0527: 1, L0657: 1, L0543: 1, H0519: 1, S0122: 1, H0365: 1, H0684: 1, H0659: 1, H0648: 1, S0328: 1, S0146: 1,

| HOVJY54 | 982032 | 182 | 16 - 372 | 2357 | Gly-1 to His-11, Pro-26 to Ser-34, Gly-50 to Glu-67, Gly-86 to Pro-91. | H0448: 1, S0432: 1, S3014: 1, S0028: 1, S0032: 1, L0751: 1, L0753: 1, S0031: 1, H0444: 1, L0596: 1, L0589: 1, L0362: 1, L0603: 1, S0011: 1, H0668: 1, H0653: 1, H0667: 1, S0276: 1, H0542: 1, H0423: 1, H0422: 1, S0458: 1, H0506: 1 and H0293: 1. | L0809: 10, H0150: 4, L0769: 4, L0804: 4, L0757: 4, H0617: 3, L0779: 3, H0662: 2, L0005: 2, S0444: 2, H0545: 2, H0135: 2, H0494: 2, L0803: 2, L0783: 2, L0663: 2, H0547: 2, L0751: 2, L0777: 2, H0484: 1, H0661: 1, S0420: 1, S0354: 1, S0358: 1, H0619: 1, H0587: 1, H0427: 1, H0581: 1, H0196: 1, H0309: 1, H0123: 1, H0081: 1, H0594: 1, S0312: 1, H0688: 1, L0483: 1, | 7q32 | 180105, 190900, 222800, 246900 |

HLDOG74	982042	183	1 - 756	2358	Pro-37 to Ser-45, Asp-64 to Thr-69, Asp-151 to Gln-157, Arg-191 to Lys-196.	H0033: 1, H0424: 1, H0213: 1, H0316: 1, H0163: 1, H0087: 1, H0412: 1, H0059: 1, H0100: 1, T0041: 1, S0438: 1, S0144: 1, S0344: 1, L0770: 1, L0761: 1, L0800: 1, L0773: 1, L0662: 1, L0794: 1, L0375: 1, L0651: 1, L0379: 1, L0659: 1, L0383: 1, L0789: 1, H0520: 1, L0521: 1, H0696: 1, S0406: 1, S3014: 1, S0206: 1, L0747: 1, L0756: 1, L0780: 1, L0752: 1, L0601: 1, H0667: 1, H0542: 1 and H0543: 1. H0510: 1	17p13	138190, 254210, 271900, 600179, 600977, 601202, 601777
HE8MM52	982197	184	19 - 1146	2359	Gly-10 to Gly-16, Pro-25 to Gly-30.	AR033: 3, AR061: 3, AR096: 3, AR089: 3, AR055: 2, AR060: 2,		

| HJBCC19 | 982465 | 185 | 2 - 949 | 2360 | Cys-1 to Gly-6. | AR039: 1, AR104: 0, AR052: 0, AR053: 0 S0414: 7, L0794: 4, H0651: 4, L0439: 3, L0749: 3, H0647: 2, L0766: 2, L0803: 2, L0659: 2, L0756: 2, L0599: 2, H0657: 1, H0645: 1, S0222: 1, H0574: 1, H0632: 1, H0486: 1, H0013: 1, H0014: 1, H0355: 1, S6028: 1, S0003: 1, H0673: 1, L0564: 1, S0438: 1, L0764: 1, L0804: 1, L0748: 1, L0754: 1, L0750: 1, L0779: 1, L0581: 1, L0608: 1, S0196: 1 and H0506: 1. |
| | | | | | | L0766: 5, L0749: 5, L0803: 3, L0809: 3, L0758: 3, S0007: 2, H0124: 2, H0135: 2, L0771: 2, L0744: 2, L0740: 2, L0747: 2, L0779: 2, L0600: 2, H0556: 1, S0116: 1, S0444: 1, H0393: 1, H0351: 1, L0118: 1, |

| HODAA93 | 982618 | 186 | 3 - 899 | 2361 | Val-50 to His-55, Ser-75 to Cys-81, Lys-98 to Lys-104. | H0038: 1, H0040: 1, T0042: 1, S0426: 1, L0763: 1, L0662: 1, L0775: 1, L0776: 1, L0659: 1, L0647: 1, L0666: 1, H0670: 1, L0439: 1, L0752: 1, L0595: 1 and H0721: 1. | | |
| | | | | | | H0328: 1, H0615: 1, L0804: 1 and H0677: 1. | Xq28 | 300031, 300044, 300048, 300049, 300049, 300055, 300100, 300100, 300104, 300126, 301201, 301590, 302060, 302060, 302060, 302060, 302960, 303700, 303800, 303900, 304800, 305900, |

| HSPSI74 | 982764 | 187 | 91 - 705 | 2362 | Pro-34 to Ser-42, Cys-82 to Lys-89, Ser-147 to Lys-156, Ser-198 to Cys-205. | | 3q21-q25 | 305900, 305900, 306700, 306995, 308310, 308840, 308840, 308840, 309200, 309548, 309620, 309900, 310300, 310400, 310460, 310460, 311300, 311510, 314300, 314400, 106165, 117700, 117700, 150210, 169600, 180380, 180380, 180380, 190000, 203500, |

| HCEHZ42 | 983008 | 188 | 2115 - 2342 | 2363 | Gly-12 to Pro-23, Gly-41 to Thr-47. | L0742: 11, L0439: 8, H0052: 5, L0794: 5, L0438: 5, S0222: 3, H0457: 3, H0135: 3, L0769: 3, L0768: 3, L0657: 3, L0666: 3, H0547: 3, H0423: 3, H0483: 2, S0354: 2, H0427: 2, H0581: 2, S0049: 2, H0494: 2, L0369: 2, L0662: 2, H0658: 2, L0752: 2, L0758: 2, L0592: 2, S0040: 1, H0650: 1, H0657: 1, L0427: 1, S0418: 1, S0358: 1, S0360: 1, H0580: 1, H0645: 1, H0550: 1, H0486: 1, L0309: 1, H0630: 1, H0687: 1, H0428: 1, H0622: 1, | 222900, 232050, 276902, 600882, 601199, 601199, 601199, 601471, 601682 |

					Amino acids	Clones	Chromosome / Markers
						H0553: 1, S0038: 1, H0560: 1, H0538: 1, L0638: 1, L0639: 1, L0646: 1, L0659: 1, L0526: 1, L0783: 1, L0809: 1, L0647: 1, H0519: 1, H0670: 1, H0651: 1, H0521: 1, S0013: 1, S0028: 1, L0741: 1, L0753: 1, L0755: 1, L0731: 1, H0445: 1, L0361: 1, L0366: 1 and H0543: 1.	109565, 109565, 142640, 228960, 261515, 600044
HDPVU15	983592	189	66 - 737	2364	Pro-16 to Gly-23, Ser-30 to Lys-38, Glu-44 to Cys-50, Pro-81 to Lys-86, Gly-135 to Gly-140, Arg-167 to Thr-176, Leu-192 to Phe-201, Pro-203 to Ser-209, His-216 to Asn-224.	H0486: 2, H0521: 2, L0748: 2, H0171: 1, H0556: 1, H0638: 1, H0351: 1, H0052: 1, H0083: 1, L0646: 1, L0794: 1, L0766: 1, L0389: 1, L0803: 1, L0375: 1, L0655: 1, L0527: 1, L0438: 1, H0519: 1, H0435: 1, H0666: 1, S0328: 1, S0378: 1, L0750: 1, L0777: 1, L0755: 1, L0592: 1, H0668: 1 and H0543: 1.	3q27
HT5GC28	984008	190	1 - 273	2365	Ala-1 to Asn-16, Thr-65 to Thr-74.	H0584: 1 and S0126: 1.11	

| HDABW50 | 984168 | 191 | 56 - 523 | 2366 | Arg-21 to Gly-28, Pro-30 to Ser-36, Arg-54 to Arg-61, Gln-125 to Gly-130, Ala-140 to Gln-145. | S0412: 19, H0657: 7, L0748: 7, L0777: 7, H0039: 6, H0659: 6, L0749: 6, H0040: 5, L0655: 5, L0747: 5, L0438: 4, L0742: 4, L0779: 4, L0758: 4, L0599: 4, H0341: 3, S0376: 3, H0497: 3, L0471: 3, H0015: 3, H0687: 3, H0090: 3, L0769: 3, L0776: 3, L0659: 3, L0517: 3, L0664: 3, H0672: 3, L0740: 3, L0752: 3, L0588: 3, L0605: 3, L0608: 3, L0362: 3, H0686: 2, H0662: 2, S0354: 2, S0360: 2, H0559: 2, H0098: 2, H0318: 2, H0545: 2, H0644: 2, L0455: 2, H0135: 2, H0038: 2, S0002: 2, L0646: 2, L0764: 2, L0803: 2, L0375: 2, L0666: 2, S0330: 2, H0539: 2, S0152: 2, H0436: 2, L0755: 2, L0731: 2, L0759: 2, S0434: 2, | 6q25.3-q26 | 100678, 147280, 167000, 173350, 173350, 173350, 180020, 600320, 600883, 602544 |

H0543: 2, L0465: 2, H0170: 1, H0265: 1, H0556: 1, T0002: 1, H0656: 1, H0663: 1, S0348: 1, S0356: 1, S0444: 1, S0408: 1, S0046: 1, H0619: 1, H0393: 1, H0351: 1, H0431: 1, H0370: 1, H0586: 1, H0643: 1, H0257: 1, H0485: 1, T0060: 1, H0013: 1, H0069: 1, H0599: 1, H0575: 1, H0004: 1, S0010: 1, S0346: 1, H0374: 1, S0049: 1, H0052: 1, H0251: 1, H0309: 1, H0546: 1, H0046: 1, H0123: 1, S0051: 1, H0356: 1, H0510: 1, H0266: 1, S0250: 1, S0003: 1, H0615: 1, L0483: 1, H0031: 1, L0142: 1, L0055: 1, H0032: 1, H0673: 1, H0674: 1, H0124: 1, H0708: 1, H0316: 1, H0163: 1, H0616: 1, H0412: 1, H0413: 1, H0623: 1,

H0100: 1, T0041: 1,
T0042: 1, S0440: 1,
H0509: 1, H0132: 1,
S0150: 1, H0641: 1,
S0422: 1, S0426: 1,
H0529: 1, L0369: 1,
L0520: 1, L0371: 1,
L0796: 1, L0761: 1,
L0772: 1, L0800: 1,
L0374: 1, L0521: 1,
L0364: 1, L0794: 1,
L0766: 1, L0522: 1,
L0805: 1, L0654: 1,
L0606: 1, L0527: 1,
L0558: 1, L0647: 1,
L0789: 1, S0374: 1,
H0519: 1, H0689: 1,
H0658: 1, H0660: 1,
S0328: 1, S0378: 1,
H0521: 1, S0168: 1,
H0555: 1, S3012: 1,
S0037: 1, S0028: 1,
L0439: 1, L0750: 1,
L0756: 1, L0757: 1,
S0260: 1, L0591: 1,
L0593: 1, L0361: 1,
S0026: 1, H0653: 1,
S0192: 1, S0242: 1,
H0542: 1, H0423: 1 and
H0422: 1.

HAQBH11	985043	192	207 - 626	2367	Glu-12 to Arg-25, Leu-36 to Gly-41.	H0360: 12, L0747: 10, L0748: 7, S0007: 6, L0731: 6, L0769: 5, L0766: 5, L0749: 5, L0740: 4, L0751: 4, L0750: 4, L0779: 4, L0471: 3, L0776: 3, L0526: 3, L0666: 3, L0439: 3, H0686: 2, S0408: 2, H0625: 2, L0639: 2, L0646: 2, L0768: 2, L0774: 2, L0655: 2, L0542: 2, L0790: 2, H0659: 2, H0134: 2, L0777: 2, L0755: 2, H0170: 1, T0002: 1, H0685: 1, H0295: 1, S0114: 1, H0663: 1, H0125: 1, S0444: 1, S0360: 1, H0580: 1, S0046: 1, H0351: 1, H0331: 1, L0623: 1, H0244: 1, H0156: 1, T0048: 1, H0052: 1, H0083: 1, H0266: 1, H0328: 1, H0031: 1, H0038: 1, H0412: 1, T0041: 1, S0438: 1, S0440: 1, L0520: 1, L0371: 1,	17p13.3	113721, 247200, 600059, 601545

HMVAW42	985280	193	1047 - 727	2368	L0770: 1, L5575: 1, L0761: 1, L0667: 1, L0764: 1, L0771: 1, L0662: 1, L0794: 1, L0803: 1, L0775: 1, L0375: 1, L0658: 1, L0789: 1, L0532: 1, L0665: 1, S0374: 1, L0693: 1, S0126: 1, H0365: 1, H0711: 1, H0684: 1, H0660: 1, S0330: 1, H0521: 1, H0631: 1, S3012: 1, L0742: 1, L0743: 1, L0752: 1, L0757: 1, L0758: 1, L0759: 1, L0480: 1, L0588: 1, L0591: 1, L0592: 1, H0665: 1, H0543: 1 and H0506: 1.	
HAGDF03	985323	194	1 - 690	2369	Pro-27 to His-33. S0212: 1, H0592: 1 and H0052: 1.	4
HOPKI29	985401	195	2 - 547	2370	Glu-4 to Gly-12, Gly-15 to Lys-21, L0779: 3, S0010: 2, H0581: 1, H0081: 1, L0770: 1, L0794: 1, H0689: 1, H0666: 1, S0330: 1, L0593: 1, S0424: 1 and H0506: 1. L0750: 11, S0026: 7, L0518: 6, L0752: 6,	12

Lys-53 to Leu-59, Ala-113 to Asp-118, Glu-137 to Met-143, Thr-164 to Lys-170, Pro-175 to Glu-180.	L0588: 6, L0747: 5, L0758: 5, S0116: 4, L0769: 4, S0360: 3, H0599: 3, H0620: 3, H0059: 3, L0766: 3, L0775: 3, L0743: 3, L0731: 3, L0757: 3, H0543: 3, S0040: 2, T0049: 2, S0212: 2, H0305: 2, S0356: 2, S0358: 2, S0045: 2, S0278: 2, L0623: 2, S0003: 2, H0031: 2, H0412: 2, H0646: 2, S0142: 2, L0763: 2, L0764: 2, L0774: 2, L0776: 2, L0659: 2, L0789: 2, L0666: 2, S0126: 2, H0648: 2, H0694: 2, S3014: 2, L0754: 2, L0755: 2, H0445: 2, L0599: 2, S6024: 1, H0650: 1, L0808: 1, H0341: 1, H0484: 1, H0402: 1, H0638: 1, S0348: 1, S0376: 1, S0444: 1, H0440: 1, H0640: 1, H0409: 1, H0586: 1, L0586: 1, S0280: 1,

L0021: 1, S0010: 1, S0665: 1, H0318: 1, H0581: 1, H0251: 1, L0040: 1, H0231: 1, H0545: 1, L0471: 1, H0012: 1, H0024: 1, H0014: 1, H0373: 1, H0051: 1, S0025: 1, H0266: 1, H0267: 1, H0288: 1, S0022: 1, S0214: 1, H0112: 1, H0405: 1, H0169: 1, S0364: 1, S0366: 1, H0090: 1, H0087: 1, S0112: 1, T0041: 1, H0494: 1, H0509: 1, S0144: 1, S0422: 1, L0770: 1, L0373: 1, L0768: 1, L0364: 1, L0650: 1, L0784: 1, L0527: 1, L0657: 1, L0665: 1, S0052: 1, S0374: 1, S0122: 1, H0689: 1, H0684: 1, H0659: 1, S0328: 1, H0521: 1, S0406: 1, H0555: 1, S0027: 1, L0740: 1, L0749: 1, L0759: 1, H0444: 1, L0485: 1, L0604: 1,

HAJCA11	985580	196	391 - 1293	2371	Asp-23 to Ser-29, Lys-36 to Ala-48, Phe-66 to Arg-74, Gly-92 to Thr-98, Arg-137 to Asp-142, Met-155 to Ser-161.	2p16	126600, 126600, 136435, 160980, 600678	L0366: 1, H0668: 1, H0653: 1, S0192: 1 and H0506: 1. L0471: 2, H0561: 2, H0543: 2, H0013: 1, H0090: 1, H0634: 1, H0551: 1 and H0560: 1.
HWAHA11	986078	197	1144 - 602	2372				AR061: 3, AR089: 3, AR096: 3, AR039: 2, AR060: 2, AR033: 1, AR104: 1, AR055: 1, AR052: 0, AR053: 0 L0751: 6, H0659: 4, H0657: 2, L0764: 2, L0655: 2, H0682: 2, H0521: 2, L0743: 2, L0749: 2, H0265: 1, T0049: 1, S0134: 1, H0255: 1, H0638: 1, S0358: 1, S0376: 1, H0637: 1, S0045: 1, H0549: 1, H0486: 1, T0060: 1, H0575: 1, H0581: 1, H0061: 1, H0266: 1, L0055: 1, H0068: 1, H0090: 1, H0551: 1, H0413: 1, S0142: 1, S0002: 1,

Gene					Amino acid range	Clones	Chrom.	OMIM
						L0769: 1, L0775: 1, L0776: 1, L0657: 1, L0664: 1, H0658: 1, H0670: 1, H0648: 1, S0378: 1, L0779: 1, L0731: 1, L0601: 1 and H0423: 1.		
HSAMI43	986158	198	2 - 1477	2373	Glu-27 to Thr-33.	L0717: 2, H0660: 2, S0420: 1, S0376: 1, H0393: 1, H0013: 1, H0266: 1, H0038: 1, H0529: 1, L0800: 1, L0794: 1, L0766: 1, L0657: 1, L0666: 1, H0658: 1, H0626: 1, L0759: 1, H0665: 1, H0543: 1 and H0677: 1.		
HNFJH73	986165	199	1 - 609	2374	Ser-2 to Gly-7, Tyr-18 to Phe-26, Lys-39 to Gly-57, Gly-100 to Pro-106, Asn-109 to Ser-116, Tyr-119 to Ile-125, Pro-151 to Phe-157.	L0439: 10, L0740: 8, L0794: 7, L0805: 7, L0438: 6, H0539: 6, L0748: 6, L0754: 5, L0769: 4, L0776: 4, H0521: 4, H0615: 3, H0040: 3, H0100: 3, L0595: 3, H0624: 2, H0170: 2, H0656: 2, S0045: 2, H0013: 2, S0010: 2, H0051: 2, L0766: 2, L0774: 2, L0375: 2, L0806: 2,	3q28	165500, 600700

| HNTCH03 | 986328 | 200 | 57 - 248 | 2375 | Val-15 to Pro-21, Leu-56 to Gln-64. | H0670: 2, H0648: 2, L0753: 2, L0731: 2, L0759: 2, L0589: 2, H0686: 1, S0040: 1, S0342: 1, L0005: 1, H0431: 1, H0333: 1, H0485: 1, H0486: 1, H0327: 1, H0546: 1, H0046: 1, H0009: 1, H0123: 1, H0012: 1, H0271: 1, H0039: 1, H0030: 1, H0644: 1, H0628: 1, H0032: 1, H0591: 1, H0058: 1, T0067: 1, S0450: 1, S0438: 1, L0770: 1, L0764: 1, L0381: 1, L0803: 1, L0661: 1, L0789: 1, H0144: 1, S0328: 1, H0540: 1, L0747: 1, L0749: 1, L0750: 1, L0779: 1, L0777: 1, L0757: 1, S0031: 1, H0445: 1, H0595: 1, L0599: 1, L0603: 1 and H0008: 1. L0663: 2, H0556: 1, H0686: 1, L0717: 1, L0764: 1, L0794: 1, L0656: 1, L0665: 1, |

| HSUAA20 | 986744 | 201 | 2 - 1321 | 2376 | Val-36 to Gly-52, Asp-140 to Ser-148, Ser-158 to Thr-163, Arg-168 to Ala-175, Glu-196 to Arg-205, Ser-271 to Lys-276, Val-281 to Tyr-294, Arg-305 to Met-310, Cys-314 to Ile-324, Gln-326 to Tyr-345, Phe-356 to Trp-361, Leu-383 to Ala-390, Glu-412 to Ile-420. | L0750: 12, L0747: 7, H0543: 7, L0748: 6, L0764: 3, H0539: 3, H0657: 2, L0785: 2, S0358: 2, H0266: 2, H0031: 2, L0766: 2, L0775: 2, L0783: 2, L0666: 2, L0663: 2, L0438: 2, H0435: 2, H0658: 2, H0670: 2, L0588: 2, H0542: 2, H0624: 1, S0342: 1, L0443: 1, L0808: 1, H0305: 1, L0481: 1, H0431: 1, H0438: 1, S0280: 1, L0021: 1, H0036: 1, H0004: 1, H0318: 1, N0006: 1, H0050: 1, L0471: 1, H0687: 1, S0003: 1, H0428: 1, L0455: 1, H0494: 1, H0625: 1, L0598: 1, L0763: 1, L0769: 1, L0761: 1, L0772: 1, L0641: 1, L0773: 1, L0662: 1, S0374: 1, H0519: 1, H0659: 1, H0648: 1, L0748: 1, L0759: 1, S0436: 1 and L0608: 1. | 17p13.3 | 113721, 247200, 600059, 601545 |

Gene	Accession		Range	SEQ ID	Amino acid positions	Clone distribution	Cytoband	Codes
HSPAD08	986767	202	809 - 1054	2377	Pro-32 to Ser-37, Arg-52 to Gly-63, Lys-66 to Gly-73.	H0670: 4, S0408: 3, L0666: 3, L0665: 3, H0156: 1, H0615: 1, L0776: 1, L0527: 1, H0658: 1 and H0478: 1.	20q12-q13.2	118504, 118504, 131242, 139320, 139320, 139320, 139320, 600281, 600281, 602025
HFKBA32	987018	203	1 - 618	2378	Phe-1 to Cys-10.	L0439: 7, L0438: 4, L0770: 3, L0809: 3, S0360: 2, H0011: 2, L0794: 2, H0672: 2, L0749: 2, L0756: 2, L0759: 2, S0046: 1, L0378: 1, L0806: 1, L0776: 1, L0657: 1, L0659: 1, L0517: 1, L0809: 1, L0647: 1, L0532: 1, S0126: 1, H0689: 1, H0690: 1, H0659: 1, H0660: 1, S0328: 1, H0518: 1, H0134: 1, L0740: 1, L0754: 1, L0749: 1, L0759: 1, L0591: 1, L0608: 1, L0362: 1, L0366: 1, H0136: 1 and S0398: 1.	20p12	112261, 176640, 176640, 176640, 236700, 601920

| HHFLU49 | 987071 | 204 | 50 - 745 | 2379 | Val-23 to Gly-32. | H0437: 1, T0048: 1, S0050: 1, S0051: 1, H0687: 1, L0455: 1, H0100: 1, L0351: 1, L0769: 1, L0761: 1, L0768: 1, L0806: 1, L0659: 1, L0383: 1, L0666: 1, H0547: 1, H0539: 1, L0748: 1, L0747: 1, L0780: 1, L0731: 1, L0366: 1 and L0697: 1.   L0751: 4, S0126: 3, H0658: 2, L0741: 2, H0171: 1, T0002: 1, S0001: 1, H0619: 1, H0574: 1, H0618: 1, H0199: 1, H0057: 1, H0020: 1, H0201: 1, L0055: 1, H0038: 1, L0769: 1, L0646: 1, L0643: 1, L0794: 1, L0766: 1, L0774: 1, L0655: 1, L0659: 1, L0665: 1, H0703: 1, H0659: 1, S0028: 1, L0777: 1, L0780: 1, L0731: 1, L0758: 1, S0031: 1, L0599: 1, H0136: 1 and H0543: 1. | 19q13.3 | 113900, 126340, 126391, 130410, 134790, 138570, 160900, 173850, 258501, 600040, 602225, 602225 |

| HOENX16 | 987112 | 205 | 164 - 850 | 2380 | Pro-3 to Val-18, Trp-21 to Gly-27. | L0805: 18, L0776: 16, L0751: 14, L0759: 10, L0770: 8, L0769: 6, L0758: 6, H0351: 4, L0803: 4, L0807: 4, L0754: 4, H0716: 3, S0250: 3, H0615: 3, H0644: 3, L0791: 3, L0793: 3, S0408: 2, H0013: 2, H0594: 2, H0591: 2, L0796: 2, L0521: 2, L0662: 2, L0794: 2, L0774: 2, L0518: 2, L0792: 2, L0666: 2, H0144: 2, H0670: 2, L0740: 2, L0779: 2, H0624: 1, S0342: 1, H0640: 1, H0369: 1, H0549: 1, H0486: 1, S0280: 1, L0021: 1, L0022: 1, S0010: 1, L0109: 1, H0024: 1, S0051: 1, H0428: 1, H0622: 1, H0032: 1, T0067: 1, H0059: 1, L0640: 1, L0763: 1, L0773: 1, L0659: 1, L0809: 1, L0788: 1, L0532: 1, L0665: 1, H0547: 1, | 6p22-p21 | 180297, 248611, 251000, 263200, 600211, 600701, 601690 |

HTFOW71	987165	206	14 - 400	2381	Thr-1 to Ser-6.	S0126: 1, S0328: 1, S0378: 1, S0037: 1, L0745: 1, L0750: 1, L0777: 1, L0780: 1, S0434: 1, L0361: 1, S0194: 1, S0398: 1, S0460: 1, H0008: 1 and H0352: 1.	L0766: 4, L0665: 4, L0754: 3, H0013: 2, H0052: 2, L0776: 2, H0144: 2, L0777: 2, L0622: 1, H0427: 1, S0344: 1, L0520: 1, L0774: 1, L0775: 1, L0527: 1, L0659: 1, L0666: 1, H0689: 1, H0682: 1, H0672: 1, H0522: 1, L0741: 1, L0750: 1, L0756: 1, L0758: 1 and S0424: 1.
HTTAG03	987262	207	1270 - 68	2382	Pro-4 to Pro-27, Ala-35 to Arg-43, Asp-56 to Val-61.	L0439: 70, L0666: 20, L0748: 20, H0013: 15, L0663: 15, L0740: 15, L0754: 14, L0438: 12, L0769: 11, L0752: 11, H0046: 9, L0662: 9, L0776: 9, L0665: 9, H0547: 9, L0766: 8, H0670: 8, H0622: 7,	

L0770: 7, L0758: 7,
S0007: 6, H0040: 6,
L0761: 6, L0659: 6,
H0696: 6, L0753: 6,
L0592: 6, S0010: 5,
H0428: 5, H0144: 5,
L0742: 5, L0747: 5,
H0305: 4, S0222: 4,
H0486: 4, S0346: 4,
L0351: 4, L0768: 4,
L0650: 4, H0658: 4,
L0756: 4, L0759: 4,
L0594: 4, L0362: 4,
H0556: 3, S0356: 3,
H0587: 3, H0574: 3,
H0575: 3, T0082: 3,
H0318: 3, S0049: 3,
H0251: 3, H0309: 3,
H0327: 3, H0050: 3,
H0014: 3, H0688: 3,
S0036: 3, H0538: 3,
L0638: 3, L0560: 3,
L0651: 3, L0655: 3,
L0517: 3, L0532: 3,
L0664: 3, H0682: 3,
H0659: 3, H0539: 3,
H0521: 3, S0436: 3,
L0591: 3, H0171: 2,
H0265: 2, S0116: 2,
S0420: 2, H0580: 2,

H0393: 2, H0392: 2, H0497: 2, L0623: 2, H0427: 2, H0590: 2, H0581: 2, H0052: 2, H0620: 2, H0687: 2, S0003: 2, H0615: 2, H0039: 2, L0455: 2, H0090: 2, H0591: 2, H0413: 2, T0042: 2, L0796: 2, L0648: 2, L0649: 2, L0775: 2, L0375: 2, L0809: 2, H0689: 2, H0672: 2, S0330: 2, S0378: 2, S0404: 2, L0744: 2, L0749: 2, L0777: 2, L0731: 2, L0596: 2, L0605: 2, L0599: 2, S0026: 2, H0423: 2, H0170: 1, L0615: 1, T0002: 1, H0686: 1, H0717: 1, L0418: 1, L0423: 1, S0212: 1, S0282: 1, H0664: 1, H0241: 1, H0638: 1, S0358: 1, S0444: 1, S0360: 1, S0410: 1, T0008: 1, H0722: 1, H0208: 1, S0476: 1, H0619: 1, S0300: 1,

H0351: 1, S0278: 1,
S6022: 1, H0261: 1,
H0351: 1, S0278: 1,
S6022: 1, H0261: 1,
H0351: 1, S0278: 1,
S6022: 1, H0261: 1,
H0441: 1, H0453: 1,
H0370: 1, H0455: 1,
H0409: 1, H0586: 1,
H0333: 1, H0642: 1,
H0632: 1, H0485: 1,
T0039: 1, T0109: 1,
S0280: 1, H0156: 1,
L0021: 1, H0037: 1,
H0618: 1, H0505: 1,
S0474: 1, H0263: 1,
H0544: 1, H0545: 1,
H0439: 1, H0150: 1,
H0123: 1, H0011: 1,
H0373: 1, L0163: 1,
H0051: 1, S0388: 1,
H0399: 1, H0354: 1,
S6028: 1, H0266: 1,
S0340: 1, S0250: 1,
S0214: 1, L0194: 1,
H0553: 1, L0055: 1,
H0169: 1, H0124: 1,
H0708: 1, H0038: 1,
H0634: 1, H0551: 1,
H0380: 1, H0264: 1,
H0623: 1, S0386: 1,
H0100: 1, L0354: 1,
H0494: 1, S0372: 1,
S0440: 1, S0150: 1,

H0646: 1, S0002: 1, S0426: 1, L0598: 1, H0529: 1, L0762: 1, L0763: 1, L0371: 1, L5565: 1, L0667: 1, L0772: 1, L0641: 1, L0764: 1, L0773: 1, L0521: 1, L0626: 1, L0363: 1, L0767: 1, L0794: 1, L0381: 1, L0803: 1, L0774: 1, L0376: 1, L0805: 1, L0628: 1, L0807: 1, L0657: 1, L0658: 1, L0783: 1, L0792: 1, L0793: 1, H0725: 1, H0691: 1, H0520: 1, H0519: 1, H0690: 1, H0683: 1, H0435: 1, H0648: 1, H0651: 1, L0355: 1, S0328: 1, S0380: 1, H0710: 1, H0518: 1, S0406: 1, S0432: 1, S0028: 1, L0745: 1, L0750: 1, L0755: 1, S0031: 1, H0444: 1, H0445: 1, L0683: 1, S0434: 1, L0589: 1, L0590: 1, L0595: 1, L0366: 1,

						S0011: 1, H0667: 1, S0192: 1, S0276: 1, H0542: 1, S0462: 1 and H0506: 1.		
HNTNN89	987577	208	2 - 562	2383	Glu-134 to Val-139, Trp-147 to Lys-161, Ala-163 to Pro-172.	S0250: 4, S0358: 3, N0006: 3, H0620: 3, H0014: 3, H0656: 2, H0024: 2, L0776: 2, L0750: 2, S0212: 1, H0450: 1, H0549: 1, H0550: 1, H0575: 1, H0036: 1, H0590: 1, H0050: 1, L0471: 1, H0373: 1, H0628: 1, H0038: 1, H0551: 1, H0264: 1, H0100: 1, H0494: 1, H0509: 1, L0790: 1, H0520: 1, H0435: 1, H0521: 1, S0027: 1, S0032: 1, L0759: 1, S0434: 1, L0485: 1, L0595: 1, H0542: 1, H0543: 1 and S0021: 1.		
HRADQ96	987636	209	165 - 398	2384	Pro-5 to Gly-13, Gly-26 to Gly-34, Leu-49 to Glu-62, Gly-67 to Val-78.	L0758: 4, L0803: 3, L0779: 3, L0794: 2, L0776: 2, L0789: 2, H0555: 2, L0748: 2, H0731: 2, H0622: 1, L0800: 1, L0809: 1,	6p21.3	106300, 108800, 120290, 120290, 120810, 120820,

| HLDCJ16 | 987808 | 210 | 93 - 776 | 2385 | Asn-85 to Glu-91. | L0731: 29, L0662: 11, L0747: 11, S0003: 9, L0666: 9, L0779: 9, L0758: 9, L0809: 8, S0360: 7, S0132: 7, H0046: 7, L0752: 7, S0040: 6, S0358: 6, L0803: 6, L0659: 6, L0748: 6, L0777: 6, H0599: 5, L0471: 5, | L0666: 1, H0670: 1, H0648: 1, L0745: 1, L0749: 1, L0759: 1 and L0596: 1. | 142857, 142858, 150270, 167250, 170261, 177900, 179450, 201910, 217000, 222100, 233100, 235200, 248611, 256550, 256550, 600202, 600261, 601868, 602280, 602475 |

H0616: 5, L0664: 5, L0744: 5, L0754: 5, L0749: 5, H0662: 4, S0476: 4, H0251: 4, S0022: 4, H0641: 4, L0806: 4, L0663: 4, S0126: 4, H0696: 4, L0439: 4, L0756: 4, L0362: 4, L0002: 3, H0411: 3, H0600: 3, H0013: 3, H0597: 3, H0231: 3, L0774: 3, L0805: 3, S0146: 3, L0759: 3, S0436: 3, L0603: 3, H0624: 2, H0170: 2, H0717: 2, S0212: 2, H0255: 2, S0418: 2, H0580: 2, H0729: 2, L0717: 2, H0592: 2, H0586: 2, H0575: 2, H0036: 2, H0590: 2, H0024: 2, H0373: 2, S0250: 2, H0039: 2, H0622: 2, L0483: 2, S0366: 2, H0038: 2, H0551: 2, L0564: 2, H0494: 2, S0352: 2, S0002: 2, L0770: 2, L0772: 2, L0800: 2, L0641: 2,

L0764: 2, L0768: 2, L0745: 2, L0750: 2, L0599: 2, L0785: 1, S0001: 1, H0663: 1, H0664: 1, H0638: 1, S0001: 1, H0663: 1, H0664: 1, H0638: 1, S0001: 1, H0663: 1, H0664: 1, H0638: 1, S0001: 1, H0663: 1, H0664: 1, H0638: 1, S0442: 1, S0376: 1, S0444: 1, H0637: 1, H0735: 1, H0734: 1, H0437: 1, H0369: 1, S0222: 1, H0441: 1, H0453: 1, H0331: 1, H0574: 1, H0485: 1, H0486: 1, T0039: 1, H0244: 1, H0427: 1, H0156: 1, L0105: 1, H0318: 1, H0581: 1, H0196: 1, H0234: 1, H0546: 1, H0050: 1, H0105: 1, H0014: 1, S0388: 1, S6028: 1, S0318: 1, H0252: 1, H0428: 1, H0553: 1, H0644: 1, H0673: 1, H0674: 1, S0364: 1, H0708: 1, H0591: 1, H0412: 1, H0413: 1,

H0100: 1, S0112: 1,
T0041: 1, H0509: 1,
H0646: 1, S0208: 1,
L0763: 1, L0769: 1,
L0372: 1, L0771: 1,
L0773: 1, L0648: 1,
L0521: 1, L0364: 1,
L0794: 1, L0533: 1,
L0379: 1, L0807: 1,
L0512: 1, L0782: 1,
L0384: 1, L0647: 1,
L0788: 1, L0665: 1,
S0374: 1, L0565: 1,
L0438: 1, H0547: 1,
H0689: 1, H0683: 1,
H0684: 1, H0658: 1,
S0330: 1, S0380: 1,
L0602: 1, S0152: 1,
S0013: 1, S0406: 1,
H0555: 1, H0631: 1,
S0432: 1, S0037: 1,
S3014: 1, S0027: 1,
S0028: 1, L0755: 1,
L0757: 1, H0444: 1,
L0596: 1, L0588: 1,
L0591: 1, L0485: 1,
S0011: 1, S0026: 1,
S0192: 1, S0194: 1,
S0456: 1, H0506: 1 and
H0008: 1.

HCOPH23	987900	211	268 - 603	2386		S0386: 1, H0670: 1 and H0444: 1.	2q36	120070, 120131, 120131, 138030, 147545, 259900, 262000
HEEAQ78	988159	212	466 - 149	2387	Ala-9 to Phe-15, Gly-44 to Pro-52, Pro-100 to Lys-106.	H0549: 2, H0023: 2, H0024: 2, L0750: 2, H0624: 1, L0659: 1, L0809: 1, L0740: 1, L0747: 1 and L0731: 1.	17q23	106180, 138700, 139250, 150200, 154275, 176960, 249000, 253250
HOFNY16	988363	213	2 - 853	2388	Ala-1 to Thr-9, Arg-62 to Trp-77, Arg-176 to Pro-181, Val-191 to Leu-198, Lys-265 to Lys-272, Asn-276 to Val-283.	L0766: 5, L0755: 5, L0770: 4, L0659: 4, L0750: 4, L0752: 4, S0360: 3, L0764: 3, L0662: 3, L0774: 3, L0740: 3, L0731: 3, L0759: 3, S0132: 2, H0411: 2, H0188: 2, H0413: 2, L0598: 2, L0805: 2, L0782: 2, L0664: 2, H0144: 2, L0751: 2, L0749: 2, S0194: 2, H0624: 1, H0713: 1, S0218: 1, S0116: 1, H0663: 1,		

| HSLCX45 | 988441 | 214 | 1 - 1458 | 2389 | His-11 to Pro-18, | L0481: 1, S0376: 1, H0415: 1, H0586: 1, H0587: 1, T0109: 1, H0545: 1, H0046: 1, H0123: 1, T0023: 1, H0166: 1, H0038: 1, H0551: 1, H0264: 1, H0059: 1, T0042: 1, H0494: 1, H0560: 1, S0440: 1, H0529: 1, L0762: 1, L0763: 1, L0769: 1, L0796: 1, L0637: 1, L0772: 1, L0646: 1, L0800: 1, L0771: 1, L0768: 1, L0649: 1, L0803: 1, L0661: 1, L0657: 1, L0532: 1, S0374: 1, H0520: 1, S0126: 1, S0122: 1, H0659: 1, H0658: 1, H0660: 1, S0404: 1, S0037: 1, S3014: 1, S0206: 1, L0748: 1, L0747: 1, L0756: 1, L0757: 1, L0758: 1, S0434: 1, S0436: 1, L0591: 1, L0608: 1, L0595: 1 and S0276: 1. | S0436: 10, L0803: 6, | 19q12 |

Arg-40 to Asn-53.	H0046: 5, L0754: 5, L0362: 5, L0794: 4, L0766: 4, L0749: 4, L0779: 4, S0444: 3, L0805: 3, L0527: 3, H0648: 3, L0439: 3, L0740: 3, L0747: 3, L0750: 3, L0777: 3, L0752: 3, H0671: 2, S0360: 2, S0408: 2, H0486: 2, L0105: 2, T0067: 2, H0059: 2, H0652: 2, L0770: 2, L0641: 2, L0662: 2, L0655: 2, L0665: 2, L0793: 2, L0783: 2, L0438: 2, H0520: 2, H0435: 2, H0659: 2, S0136: 2, L0731: 2, L0758: 2, L0759: 2, S0424: 2, H0717: 1, S0402: 1, H0657: 1, H0254: 1, S0348: 1, S0442: 1, H0722: 1, S0132: 1, S0476: 1, H0640: 1, S0300: 1, L0717: 1, S0278: 1, S0222: 1, H0587: 1, H0156: 1, H0575: 1, T0082: 1, H0318: 1,

Clone ID					Description	Fragments
HLMJB09	988499	215	249 - 506	2390	Gln-10 to Lys-15, Pro-28 to Gln-33.	S0049: 1, H0052: 1, H0544: 1, H0545: 1, H0201: 1, T0010: 1, H0083: 1, S0003: 1, H0328: 1, H0428: 1, H0039: 1, H0622: 1, L0483: 1, S0364: 1, H0038: 1, H0551: 1, H0264: 1, T0069: 1, L0564: 1, T0041: 1, H0641: 1, H0529: 1, L0642: 1, L0764: 1, L0771: 1, L0364: 1, L0649: 1, L0388: 1, L0776: 1, L0809: 1, L0530: 1, L0663: 1, L0664: 1, H0547: 1, H0670: 1, H0672: 1, S0350: 1, S0406: 1, H0478: 1, S0027: 1, S0028: 1, L0748: 1, L0746: 1, L0756: 1, L0599: 1, H0542: 1, H0423: 1, H0422: 1 and L0697: 1. —— H0255: 1, H0002: 1, H0266: 1, L0803: 1, H0660: 1, L0751: 1 and L0777: 1.
HOVEF60	988526	216	113 - 724	2391	Tyr-18 to Lys-23,	H0428: 8, L0603: 2

HOGDR72	988536	217	2 - 415	2392	Pro-32 to Arg-44, Pro-51 to Gly-56. Lys-56 to Leu-70, Gln-85 to Ala-91, Met-123 to Asn-133.	and S0114: 1.	13

H0617: 10, S0410: 8, L0769: 7, H0038: 6, L0439: 6, L0750: 6, L0752: 6, L0758: 6, S0360: 5, L0775: 5, S0406: 5, H0150: 4, L0157: 4, H0620: 4, H0087: 4, S0440: 4, S0344: 4, L0763: 4, S0328: 4, L0747: 4, H0224: 3, H0484: 3, H0402: 3, S0049: 3, H0708: 3, L0773: 3, L0805: 3, L0809: 3, L0519: 3, H0670: 3, L0748: 3, L0731: 3, L0757: 3, L0581: 3, H0295: 2, H0341: 2, S0444: 2, S0222: 2, L0622: 2, H0253: 2, H0309: 2, T0115: 2, H0544: 2, H0545: 2, H0081: 2, H0012: 2, H0673: 2, S0036: 2, H0616: 2, L0770: 2, L0518: 2, H0725: 2, S0374: 2, H0696: 2, ... L0588: 2, H0543: 2,

L0615: 1, H0160: 1,
H0225: 1, H0713: 1,
S6024: 1, S0430: 1,
H0656: 1, S0116: 1,
S0212: 1, H0483: 1,
H0306: 1, H0638: 1,
H0125: 1, S0420: 1,
S0358: 1, S0408: 1,
H0637: 1, S0476: 1,
H0640: 1, H0411: 1,
S0278: 1, H0441: 1,
H0461: 1, H0298: 1,
H0333: 1, L0623: 1,
H0486: 1, H0427: 1,
H0156: 1, H0599: 1,
T0082: 1, T0048: 1,
H0318: 1, H0581: 1,
H0196: 1, H0597: 1,
L0738: 1, H0530: 1,
H0242: 1, H0024: 1,
H0373: 1, L0163: 1,
H0275: 1, H0188: 1,
H0284: 1, S0003: 1,
H0428: 1, H0213: 1,
H0405: 1, H0181: 1,
H0182: 1, H0606: 1,
L0055: 1, H0163: 1,
H0063: 1, T0067: 1,
H0100: 1, H0560: 1,
H0561: 1, H0647: 1,

HOCMF20	988556	218	1 - 366	2393	
				Gly-1 to Ser-20, Phe-29 to Asn-37, Asn-55 to Tyr-64, Ala-69 to Asp-78, Tyr-82 to Ala-91, Lys-100 to Glu-122.	S0142: 1, L0598: 1, L3904: 1, L0761: 1, L0772: 1, L0764: 1, L0767: 1, L0768: 1, L0766: 1, L0649: 1, L0803: 1, L0774: 1, L0375: 1, L0806: 1, L0776: 1, L0517: 1, L0526: 1, L0783: 1, L0789: 1, H0144: 1, L0438: 1, H0689: 1, H0690: 1, H0682: 1, H0683: 1, H0435: 1, H0659: 1, H0648: 1, H0521: 1, H0522: 1, S3014: 1, S0027: 1, L0755: 1, L0759: 1, H0445: 1, H0343: 1, H0595: 1, L0608: 1, H0136: 1, S0276: 1, H0542: 1, L0600: 1 and H0352: 1.
					S0328: 4, L0731: 3, S0356: 2, H0013: 2, L0794: 2, L0649: 2, H0435: 2, L0748: 2, L0749: 2, L0750: 2, L0758: 2, L0592: 2, H0685: 1, S0420: 1, S0360: 1, H0575: 1,

						Clone distribution	Chromosome	OMIM
						L0471: 1, S0362: 1, H0030: 1, H0031: 1, H0068: 1, H0038: 1, H0412: 1, H0413: 1, H0538: 1, L0637: 1, L0768: 1, L0766: 1, L0658: 1, L0659: 1, H0144: 1, H0547: 1, S0126: 1, H0659: 1, H0660: 1, S0027: 1, L0754: 1, L0786: 1, L0779: 1, L0755: 1 and L0757: 1.		
HAMMH26	988737	219	309 - 773	2394	Ala-12 to Asn-18.	H0618: 1, H0081: 1, T0010: 1, H0560: 1, L0763: 1, L0803: 1 and L0790: 1.		
HHFOX44	988904	220	3 - 659	2395		S0212: 20, L0751: 14, L0663: 11, L0731: 11, H0083: 10, L0657: 10, L0666: 10, H0547: 10, H0550: 7, H0620: 6, L0769: 6, H0689: 6, H0123: 5, H0428: 5, L0662: 5, S0356: 4, H0059: 4, L0664: 4, H0520: 4, H0670: 4, L0581: 4, S0418: 3, L0717: 3, H0618: 3, S0438: 3, H0494: 3,	2q33-q34	100730, 118800, 123660, 135600, 157655, 186860, 201460, 205100, 213700, 262000, 600258, 601277, 601318

L0770: 3, L0659: 3,
H0683: 3, H0660: 3,
L0747: 3, L0758: 3,
S0434: 3, H0543: 3,
H0624: 2, H0295: 2,
H0341: 2, H0662: 2,
S0358: 2, S0360: 2,
H0675: 2, S0408: 2,
H0251: 2, H0051: 2,
H0594: 2, H0687: 2,
H0615: 2, H0031: 2,
H0413: 2, H0100: 2,
L0637: 2, L0648: 2,
L0803: 2, L0774: 2,
L0783: 2, L0665: 2,
S0374: 2, S0126: 2,
H0658: 2, H0672: 2,
S0378: 2, S0406: 2,
L0439: 2, L0605: 2,
H0352: 2, H0170: 1,
H0686: 1, H0685: 1,
H0294: 1, S0180: 1,
S0298: 1, H0661: 1,
H0664: 1, S0420: 1,
S0442: 1, S0354: 1,
S0376: 1, H0637: 1,
H0329: 1, S0007: 1,
H0208: 1, H0645: 1,
H0549: 1, H0391: 1,
H0392: 1, H0331: 1,

HPWDE54	989029	221	1 - 2127	2396	
				Met-1 to Ile-6, Cys-13 to Ser-20, Asp-40 to Ser-46, Asp-48 to Ser-62, Ser-70 to Tyr-80, Glu-83 to Ser-89, Leu-108 to Ser-119,	H0632: 1, T0109: 1, H0575: 1, H0545: 1, H0009: 1, H0024: 1, H0057: 1, H0373: 1, H0188: 1, H0288: 1, H0286: 1, H0644: 1, H0617: 1, H0606: 1, H0087: 1, L0564: 1, S0440: 1, L0772: 1, L0374: 1, L0794: 1, L0652: 1, L0653: 1, L0809: 1, L0543: 1, H0693: 1, H0593: 1, H0690: 1, H0682: 1, H0684: 1, H0666: 1, S0330: 1, S0380: 1, H0696: 1, H0555: 1, S0027: 1, L0748: 1, L0750: 1, L0779: 1, L0755: 1, L0759: 1, H0445: 1, S0436: 1, L0597: 1, L0599: 1, H0542: 1 and S0384: 1. AR055: 8, AR096: 4, AR053: 4, AR104: 3, AR089: 3, AR061: 3, AR039: 3, AR060: 3, AR033: 3, AR052: 1 L0777: 4, H0052: 3, L0438: 2, L0748: 2,

HNOAX46	989183	222	1 - 789	2397		
					Cys-138 to Trp-154, Glu-198 to Val-227, Lys-251 to Asp-264, Asp-407 to Glu-415, Ile-456 to Val-462, Ser-470 to His-476, Phe-478 to Ser-492, Arg-500 to Asp-507, Asn-595 to Ala-603, Leu-638 to Leu-648, Lys-667 to Asn-673, Trp-684 to Ile-691, Ser-698 to Glu-709.	S0212: 1, S0376: 1, H0438: 1, H0318: 1, L0471: 1, H0375: 1, H0038: 1, H0551: 1, L0763: 1, L0764: 1, L0767: 1, L0794: 1, L0775: 1, L0805: 1, L0653: 1, H0648: 1, S0044: 1, L0742: 1, L0439: 1, L0747: 1, L0750: 1, S0031: 1, H0445: 1, L0590: 1 and H0543: 1.	H0556: 17, H0305: 15, S0414: 14, L0665: 14, H0402: 12, S0360: 11, L0663: 11, L0777: 11, L0766: 9, L0664: 9, L0752: 9, L0362: 9, L0662: 8, L0754: 8, S0408: 7, L0776: 7, L0666: 7, H0648: 7, S0406: 7, L0758: 7, H0422: 7, L0803: 6, L0655: 6, H0696: 6, H0657: 5, H0486: 5, L0770: 5, L0659: 5, H0144: 5, S0328: 5, L0742: 5, L0731: 5, H0423: 5, H0265: 4,

H0306: 4, S0280: 4,
H0644: 4, H0169: 4,
L0775: 4, H0672: 4,
S0330: 4, H0710: 4,
H0522: 4, S0027: 4,
L0744: 4, L0747: 4,
H0170: 3, H0341: 3,
H0255: 3, S0132: 3,
H0411: 3, H0549: 3,
T0060: 3, H0581: 3,
H0309: 3, H0594: 3,
H0615: 3, L0483: 3,
H0674: 3, H0063: 3,
H0494: 3, L0769: 3,
L0761: 3, L0771: 3,
L0653: 3, L0809: 3,
S0374: 3, S0126: 3,
H0670: 3, H0436: 3,
L0750: 3, L0779: 3,
L0780: 3, H0506: 3,
H0624: 2, H0295: 2,
T0049: 2, H0583: 2,
H0650: 2, H0656: 2,
H0669: 2, H0661: 2,
H0663: 2, H0589: 2,
S0476: 2, S0278: 2,
S6022: 2, H0431: 2,
H0574: 2, L0021: 2,
H0274: 2, H0545: 2,
L0471: 2, H0051: 2,

H0284: 2, H0428: 2,
H0135: 2, H0090: 2,
H0591: 2, H0477: 2,
H0412: 2, H0509: 2,
S0144: 2, L0598: 2,
L0762: 2, L0638: 2,
L0521: 2, L0551: 2,
L0774: 2, L0805: 2,
L0783: 2, L0532: 2,
L0565: 2, H0690: 2,
H0435: 2, H0651: 2,
S0378: 2, S0380: 2,
L0743: 2, L0439: 2,
L0753: 2, L0757: 2,
S0434: 2, L0361: 2,
S0026: 2, H0542: 2,
H0352: 2, S0040: 1,
S0342: 1, H0713: 1,
H0717: 1, H0716: 1,
H0294: 1, S0114: 1,
S0134: 1, S0116: 1,
S0298: 1, S0282: 1,
H0662: 1, H0638: 1,
S0420: 1, S0356: 1,
S0354: 1, H0580: 1,
H0619: 1, L0717: 1,
L0394: 1, S0222: 1,
H0392: 1, H0409: 1,
H0602: 1, H0586: 1,
H0587: 1, H0497: 1,

H0333: 1, H0331: 1,
H0013: 1, H0244: 1,
H0427: 1, H0599: 1,
H0706: 1, S0010: 1,
S0346: 1, H0318: 1,
H0251: 1, H0123: 1,
H0012: 1, H0620: 1,
T0003: 1, S0050: 1,
H0014: 1, S0024: 1,
H0239: 1, H0510: 1,
H0247: 1, H0271: 1,
H0188: 1, H0028: 1,
S0250: 1, S0003: 1,
H0328: 1, T0023: 1,
H0031: 1, H0553: 1,
H0628: 1, H0040: 1,
H0634: 1, H0087: 1,
H0551: 1, T0067: 1,
H0488: 1, H0623: 1,
H0059: 1, H0561: 1,
S0440: 1, H0131: 1,
H0633: 1, H0652: 1,
S0142: 1, S0344: 1,
S0210: 1, H0529: 1,
L0520: 1, L0646: 1,
L0765: 1, L0648: 1,
L0767: 1, L0794: 1,
L0649: 1, L0650: 1,
L0375: 1, L0651: 1,
L0806: 1, L0654: 1,

| HCQCB28 | 989280 | 223 | 408 - 289 | 2398 | His-7 to Lys-14 | L0657: 1, L0656: 1, L0782: 1, L0647: 1, L0788: 1, L2269: 1, H0697: 1, H0691: 1, H0693: 1, L0352: 1, H0547: 1, H0689: 1, H0659: 1, H0658: 1, S0152: 1, H0525: 1, H0521: 1, S0013: 1, H0704: 1, H0694: 1, H0555: 1, S0206: 1, L0740: 1, L0749: 1, L0755: 1, L0759: 1, S0031: 1, H0445: 1, H0343: 1, H0595: 1, S0436: 1, L0599: 1, L0603: 1, S0192: 1, S0276: 1, S0196: 1, H0677: 1 and H0008: 1. | L0768: 5, L0766: 3, L0769: 2, L0748: 2, L0750: 2, L0758: 2, H0663: 1, S0420: 1, S0360: 1, H0675: 1, H0486: 1, H0596: 1, H0179: 1, H0328: 1, L0363: 1, L0806: 1, L0809: 1, H0658: 1, L0747: 1, L0777: 1, L0731: 1 and H0352: 1. |

HOOJB32	989321	224	460 - 1173	2399	Ser-75 to Ala-92, Ala-106 to Met-123, Pro-125 to Gln-131, Asp-175 to Asn-182, Val-197 to Arg-224.	L0777: 7, L0766: 5, L0663: 3, H0660: 3, L0752: 3, L0758: 3, H0650: 2, H0124: 2, L0646: 2, L0740: 2, H0445: 2, L0588: 2, L0485: 2, S0424: 2, H0657: 1, H0341: 1, S0358: 1, S0360: 1, S0046: 1, H0385: 1, H0586: 1, L0477: 1, H0004: 1, H0052: 1, H0596: 1, H0373: 1, H0083: 1, H0375: 1, H0376: 1, H0059: 1, H0494: 1, S0150: 1, L0369: 1, L0763: 1, L0764: 1, L0662: 1, L0768: 1, L0803: 1, L0775: 1, L0776: 1, L0659: 1, L0666: 1, L0665: 1, H0144: 1, S0126: 1, H0659: 1, H0648: 1, S0330: 1, S0378: 1, S0152: 1, H0436: 1, S0390: 1, L0581: 1 and H0668: 1.	
HMWIJ35	989323	225	303 - 452	2400		H0171: 1, H0341: 1, L0157: 1, H0083: 1, H0068: 1, H0038: 1,	13q14.3
							277900, 600631

HHFIA95	989396	226	105 - 188	2401	Phe-2 to Cys-10.	H0616: 1 and L0519: 1. L0438: 4, L0754: 4, H0521: 3, H0624: 2, S0356: 2, S0132: 2, L0803: 2, L0806: 2, L0439: 2, L0749: 2, L0779: 2, L0759: 2, H0556: 1, H0686: 1, L0002: 1, H0661: 1, S0376: 1, H0580: 1, H0586: 1, H0544: 1, H0050: 1, L0471: 1, H0620: 1, H0373: 1, H0051: 1, H0083: 1, H0594: 1, S6028: 1, S0003: 1, H0622: 1, H0032: 1, H0169: 1, H0040: 1, H0264: 1, H0560: 1, S0422: 1, L0369: 1, L0373: 1, L0646: 1, L0774: 1, L0784: 1, L0653: 1, L0776: 1, L0663: 1, H0593: 1, S0328: 1, H0539: 1, S0027: 1, L0752: 1, L0731: 1, L0605: 1, L0591: 1, L0604: 1 and H0542: 1.
HSPSH36	989607	227	71 - 259	2402	Pro-26 to Glu-49, Asp-58 to Pro-63.	

| HAAAA25 | 989952 | 228 | 1136 - 534 | 2403 | Lys-14 to Glu-23, Glu-30 to Ser-43, Ser-45 to His-54, Thr-66 to Tyr-71, Pro-75 to Asp-80, Ile-98 to Thr-120, Glu-125 to Lys-133, Leu-146 to Ala-152, Ala-170 to Ile-176, Asp-180 to Cys-200. | H0318: 1, H0646: 1 and L0366: 1. | 8q24.12-q24.13 | 133700, 133700, 150230, 190080, 190350 |
| HTEMJ16 | 990060 | 229 | 268 - 645 | 2404 | His-8 to Ser-15, Ser-21 to Gly-32, Arg-51 to Ala-57, Phe-71 to Leu-78, Gly-87 to Glu-92. | L0777: 10, H0616: 4, L0758: 4, L0761: 3, L0766: 3, H0648: 3, L0749: 3, L0750: 3, L0755: 3, H0318: 2, H0545: 2, H0373: 2, H0038: 2, S0438: 2, S0422: 2, L0774: 2, L0375: 2, L0657: 2, L0518: 2, H0659: 2, L0731: 2, L0759: 2, H0685: 1, H0294: 1, H0656: 1, L0808: 1, S0420: 1, H0586: 1, L0622: 1, H0486: 1, T0082: 1, S0010: 1, S0049: 1, L0471: 1, H0615: 1, L0520: 1, L0762: 1, L0763: 1, L0770: 1, L0769: 1, | | |

| HWLAB90 | 990146 | 230 | 2 - 682 | 2405 | Glu-1 to Val-14, Arg-123 to Gly-128. | L0372: 1, L0646: 1, L0767: 1, L0768: 1, L0803: 1, L0776: 1, L0658: 1, L0636: 1, L0368: 1, L0666: 1, L0664: 1, L0665: 1, H0682: 1, H0658: 1, H0666: 1, S0330: 1, S0406: 1, S0027: 1, L0747: 1, L0779: 1, L0780: 1, L0753: 1 and L0757: 1. | L0748: 6, L0774: 4, L0439: 4, L0749: 4, L0764: 3, L0771: 3, L0775: 3, L0665: 3, S0408: 2, H0644: 2, L0766: 2, L0649: 2, S0374: 2, L0747: 2, S0282: 1, H0662: 1, S0442: 1, S0354: 1, H0586: 1, H0156: 1, L0021: 1, H0239: 1, H0494: 1, S0440: 1, H0695: 1, L0762: 1, L0761: 1, L0648: 1, L0803: 1, L0804: 1, L0666: 1, L0663: 1, H0689: 1, H0658: 1, H0648: 1, S0380: 1, |

HOSED43	990184	231	2 - 790	2406	Gln-81 to Cys-86, Lys-170 to Asp-181.	S0044: 1, L0755: 1, L0758: 1 and H0423: 1. AR089: 23, AR096: 19, AR039: 16, AR052: 16, AR060: 13, AR033: 11, AR055: 10, AR104: 9, AR053: 4, AR061: 3 H0024: 2, L0594: 2, H0542: 2, H0657: 1, S0214: 1, L0761: 1, L0766: 1, H0435: 1, H0658: 1, S0380: 1, L0753: 1 and L0759: 1.
HNODF50	990254	232	761 - 165	2407	Gly-1 to Gln-11, Pro-111 to Pro-126, Lys-174 to Ser-179, Leu-181 to Leu-190.	H0617: 10, S0126: 7, S0404: 5, L0747: 5, L0779: 5, H0253: 4, H0545: 4, L0766: 4, S0328: 4, L0742: 4, L0752: 4, H0686: 3, S0420: 3, S0358: 3, S0046: 3, S0278: 3, H0592: 3, H0618: 3, H0100: 3, L0769: 3, H0519: 3, L0743: 3, L0758: 3, H0341: 2, H0484: 2, H0333: 2, H0327: 2, H0544: 2, H0046: 2, H0594: 2, T0042: 2,

S0426: 2, L0763: 2,
L0761: 2, L0764: 2,
L0519: 2, L0532: 2,
L0665: 2, H0435: 2,
H0651: 2, S0330: 2,
H0539: 2, S0206: 2,
L0751: 2, L0755: 2,
S0106: 2, H0543: 2,
H0422: 2, H0624: 1,
H0171: 1, H0657: 1,
H0656: 1, S0282: 1,
S0029: 1, H0663: 1,
H0662: 1, H0459: 1,
S0418: 1, S0354: 1,
H0393: 1, H0351: 1,
S6016: 1, S0220: 1,
H0370: 1, H0586: 1,
H0497: 1, L0623: 1,
T0114: 1, H0069: 1,
L0021: 1, H0575: 1,
H0052: 1, H0309: 1,
H0231: 1, H0546: 1,
H0041: 1, H0009: 1,
H0050: 1, H0024: 1,
L0163: 1, H0510: 1,
H0266: 1, H0284: 1,
H0286: 1, H0688: 1,
H0428: 1, L0194: 1,
T0006: 1, H0213: 1,
H0553: 1, H0644: 1,

H0628: 1, H0181: 1,
H0598: 1, S0036: 1,
H0040: 1, H0634: 1,
H0616: 1, H0087: 1,
H0059: 1, T0041: 1,
H0561: 1, H0509: 1,
H0647: 1, S0144: 1,
S0142: 1, H0538: 1,
S0002: 1, L0520: 1,
L0772: 1, L0643: 1,
L0771: 1, L0773: 1,
L0662: 1, L0794: 1,
L0386: 1, L0774: 1,
L0776: 1, L0527: 1,
L0657: 1, L0515: 1,
L0659: 1, L0517: 1,
L0542: 1, L0545: 1,
L0666: 1, L0664: 1,
H0593: 1, H0689: 1,
H0690: 1, H0682: 1,
H0659: 1, H0670: 1,
H0518: 1, S0146: 1,
H0436: 1, H0576: 1,
S0390: 1, S0037: 1,
S3014: 1, L0748: 1,
L0754: 1, L0749: 1,
L0753: 1, S0031: 1,
H0445: 1, L0596: 1,
H0668: 1, H0667: 1,
S0242: 1, S0194: 1,

| HLWBV17 | 990255 | 233 | 144 - 542 | 2408 | Pro-46 to Pro-60, Lys-108 to Ser-113, Leu-115 to Leu-124. | S0196: 1, H0423: 1 and H0008: 1. / H0617: 10, S0126: 7, S0404: 5, L0747: 5, L0779: 5, H0253: 4, H0545: 4, L0766: 4, S0328: 4, L0742: 4, L0752: 4, H0686: 3, S0420: 3, S0358: 3, S0046: 3, S0278: 3, H0592: 3, H0618: 3, H0100: 3, L0769: 3, L0665: 3, H0519: 3, L0743: 3, L0758: 3, H0341: 2, H0484: 2, H0333: 2, H0327: 2, H0544: 2, H0046: 2, H0594: 2, T0042: 2, H0494: 2, S0426: 2, L0763: 2, L0761: 2, L0764: 2, L0519: 2, L0532: 2, H0435: 2, H0651: 2, S0330: 2, H0539: 2, S0206: 2, L0751: 2, L0755: 2, S0106: 2, H0543: 2, H0422: 2, H0624: 1, H0171: 1, H0657: 1, H0656: 1, S0282: 1, S0029: 1, H0663: 1, |

H0662: 1, H0459: 1,
S0418: 1, S0354: 1,
H0393: 1, H0351: 1,
S6016: 1, S0220: 1,
H0370: 1, H0586: 1,
H0497: 1, L0623: 1,
T0114: 1, H0069: 1,
L0021: 1, H0575: 1,
H0052: 1, H0309: 1,
H0231: 1, H0546: 1,
H0041: 1, H0009: 1,
H0050: 1, H0024: 1,
L0163: 1, H0510: 1,
H0266: 1, H0284: 1,
H0286: 1, H0688: 1,
H0428: 1, L0194: 1,
T0006: 1, H0213: 1,
H0553: 1, H0644: 1,
H0628: 1, H0181: 1,
H0598: 1, S0036: 1,
H0040: 1, H0634: 1,
H0616: 1, H0087: 1,
H0059: 1, T0041: 1,
H0561: 1, H0509: 1,
H0647: 1, S0144: 1,
S0142: 1, H0538: 1,
S0002: 1, L0520: 1,
L0772: 1, L0643: 1,
L0771: 1, L0773: 1,
L0662: 1, L0794: 1,

HOCQH66	990435	234	37 - 2745	2409	L0386: 1, L0774: 1, L0776: 1, L0527: 1, L0657: 1, L0515: 1, L0659: 1, L0517: 1, L0542: 1, L0545: 1, L0666: 1, L0664: 1, H0593: 1, H0689: 1, H0690: 1, H0682: 1, H0659: 1, H0670: 1, H0518: 1, S0146: 1, H0436: 1, H0576: 1, S0390: 1, S0037: 1, S3014: 1, L0748: 1, L0754: 1, L0749: 1, L0753: 1, S0031: 1, H0445: 1, L0596: 1, H0668: 1, H0667: 1, S0242: 1, S0194: 1, S0196: 1, H0423: 1 and H0008: 1.	Leu-1 to Gly-8.	2q37, S0126: 23, S0212: 16, S0250: 15, S0192: 14, H0622: 12, H0620: 9, H0144: 9, S0040: 7, H0024: 7, H0039: 7, S3014: 7, S0011: 7, H0013: 6, L0565: 6, S0028: 6, H0667: 6, S0194: 6, H0619: 5, H0031: 5, H0628: 5,	113300, 120070, 120131, 120131, 120250, 138030, 259900, 600430

H0551: 5, H0624: 4, H0012: 4, S0027: 4, L0747: 4, H0665: 4, H0586: 3, T0039: 3, H0575: 3, H0014: 3, H0252: 3, L0142: 3, H0038: 3, H0616: 3, S0037: 3, L0748: 3, S0298: 2, H0486: 2, H0244: 2, H0427: 2, H0318: 2, H0050: 2, L0471: 2, H0284: 2, H0286: 2, H0328: 2, H0032: 2, H0591: 2, S0390: 2, S0206: 2, S0196: 2, S0462: 2, H0170: 1, H0222: 1, S0430: 1, H0661: 1, S0356: 1, S0354: 1, S0360: 1, H0645: 1, H0393: 1, H0549: 1, H0370: 1, H0485: 1, H0270: 1, H0599: 1, H0042: 1, H0594: 1, S0003: 1, S0022: 1, S0214: 1, L0053: 1, H0030: 1, H0553: 1, H0644: 1, H0124: 1, S0366: 1, H0598: 1, H0090: 1, H0040: 1,

HOGDC67	990546	235	1887 - 859	2410	Thr-77 to Val-84, Ser-244 to Val-255, Ala-296 to Val-301.	17

H0063: 1, H0647: 1, L0763: 1, L0545: 1, L0789: 1, L0438: 1, H0519: 1, H0682: 1, H0658: 1, H0660: 1, S0332: 1, S0146: 1, S0032: 1, L0439: 1, L0751: 1, L0754: 1, L0750: 1, L0731: 1, S0242: 1, H0008: 1 and H0293: 1.

S0126: 8, S0418: 5, L0439: 5, H0551: 4, L0438: 4, L0747: 4, S0192: 4, H0556: 3, H0046: 3, L0769: 3, L0771: 3, L0662: 3, L0665: 3, L0731: 3, H0265: 2, S0360: 2, S0410: 2, S0046: 2, H0370: 2, H0618: 2, H0284: 2, H0181: 2, H0494: 2, H0560: 2, L0763: 2, L0764: 2, L0649: 2, L0378: 2, L0806: 2, L0547: 2, L0789: 2, L0666: 2, L0663: 2, H0520: 2, H0435: 2, S0152: 2, L0759: 2, L0596: 2,

L0595: 2, H0624: 1,
S0040: 1, S0342: 1,
H0657: 1, S0212: 1,
S0420: 1, S0045: 1,
H0441: 1, H0497: 1,
H0333: 1, H0559: 1,
H0486: 1, T0109: 1,
H0253: 1, H0309: 1,
H0545: 1, H0123: 1,
H0081: 1, H0024: 1,
S0388: 1, T0010: 1,
H0594: 1, H0266: 1,
H0292: 1, H0286: 1,
H0252: 1, H0615: 1,
H0039: 1, H0048: 1,
H0644: 1, H0617: 1,
H0598: 1, H0135: 1,
H0063: 1, H0164: 1,
H0433: 1, H0625: 1,
H0561: 1, L0065: 1,
H0131: 1, S0150: 1,
H0633: 1, H0538: 1,
S0208: 1, H0529: 1,
L0770: 1, L0637: 1,
L0800: 1, L0374: 1,
L0644: 1, L0363: 1,
L0794: 1, L0766: 1,
L0388: 1, L0533: 1,
L0804: 1, L0650: 1,
L0540: 1, L0809: 1,

| HCDBO02 | 990609 | 236 | 4088 - 831 | 2411 | H0547: 1, H0593: 1, H0659: 1, H0660: 1, S0044: 1, H0478: 1, S3014: 1, S0032: 1, L0750: 1, L0777: 1,.. L0758: 1, S0031: 1, H0653: 1 and H0667: 1. | L0794: 15, L0766: 12, L0439: 9, H0547: 7, H0520: 6, H0435: 5, S0440: 4, S0422: 4, L0664: 4, L0756: 4, S0376: 3, H0251: 3, H0529: 3, L0659: 3, L0755: 3, S0026: 3, H0657: 2, S0418: 2, S0444: 2, L0646: 2, L0768: 2, L0789: 2, H0519: 2, H0672: 2, H0555: 2, L0754: 2, L0747: 2, L0779: 2, L0777: 2, L0731: 2, L0759: 2, L0589: 2, L0581: 2, L0608: 2, L0593: 2, H0542: 2, H0423: 2, H0422: 2, T0002: 1, S0040: 1, H0717: 1, H0650: 1, H0662: 1, S0420: 1, H0580: 1, H0729: 1, | 12q14 | 123829, 147570, 181430, 252940, 264700, 600808, 601284, 601769, 601769, 602116 |

| HODGN92 | 990611 | 237 | 101 - 505 | 2412 | H0229: 1, L0717: 1, H0497: 1, H0486: 1, H0244: 1, H0318: 1, H0581: 1, H0596: 1, L0041: 1, H0009: 1, H0563: 1, H0572: 1, L0471: 1, H0266: 1, S0214: 1, H0252: 1, H0039: 1, L0055: 1, S0036: 1, H0090: 1, H0412: 1, H0623: 1, H0059: 1, S0038: 1, H0494: 1, S0150: 1, L0637: 1, L0641: 1, L0764: 1, L0771: 1, L0803: 1, L0804: 1, L0775: 1, L0375: 1, L0657: 1, L0518: 1, L0809: 1, L5623: 1, L0666: 1, H0144: 1, H0701: 1, H0711: 1, H0659: 1, H0670: 1, H0660: 1, H0648: 1, L0602: 1, S0028: 1, L0744: 1, L0748: 1, L0780: 1, S0436: 1, L0591: 1, L0594: 1, L0366: 1 and H0665: 1. H0615: 1 and H0660: 1. |

HPDRP30	990751	238	1166 - 2098	2413	Gln-1 to Pro-11, Val-15 to Arg-23, Arg-44 to Arg-59, Thr-70 to Gln-75, Ala-153 to Gln-168, Pro-187 to Pro-194, Pro-204 to Asp-214.	H0618: 12, H0253: 4, L0771: 4, S0358: 2, H0688: 2, H0658: 2, H0651: 2, L0439: 2, L0777: 2, H0445: 2, S6024: 1, H0484: 1, S0420: 1, S0376: 1, H0619: 1, H0609: 1, H0586: 1, H0642: 1, H0427: 1, H0196: 1, H0309: 1, H0546: 1, H0009: 1, H0123: 1, H0292: 1, H0553: 1, H0617: 1, H0551: 1, H0264: 1, S0440: 1, H0646: 1, L0372: 1, L0646: 1, L0803: 1, L0658: 1, L0659: 1, L0783: 1, L0788: 1, L0438: 1, H0690: 1, H0660: 1, H0648: 1, H0479: 1, L0744: 1, L0779: 1, L0758: 1, S0436: 1, H0542: 1 and H0423: 1.		
HBXFN09	990769	239	95 - 145	2414		H0438: 1 and L0749: 1.	1p22.1-p21.3	
HDTBO75	990913	240	184 - 324	2415				170995, 600309, 601414,

HELGN26	991014	241	3 - 902	2416	Arg-1 to Asn-18.	S0045: 1		602094
HODCU15	991048	242	828 - 1592	2417	Thr-57 to Glu-63, Ala-66 to Val-75, Glu-77 to Phe-86, Asp-199 to Gly-211.	AR055: 1, AR096: 1, AR089: 1, AR060: 1, AR104: 1, AR039: 1, AR061: 1, AR053: 1, AR033: 0, AR052: 0 S0418: 1, H0328: 1 and L0758: 1.		
HOGDI51	991268	243	1 - 543	2418	Phe-102 to Pro-111, His-136 to Lys-141.	H0038: 1, H0435: 1 and L0592: 1.	9q34	125270, 125270, 128100, 137350, 191100, 215700, 223360, 268900, 601850
HLWAF02	991516	244	156 - 449	2419	Arg-1 to Ser-6, Phe-13 to Gln-24, Glu-31 to Arg-40, Ser-48 to Asn-56, Asp-69 to Val-75.	H0553: 1 and L0758: 1.	2q	
HRKPA16	991654	245	296 - 502	2420	Asn-47 to Phe-58.	L0748: 3, L0759: 3, H0366: 2, L0666: 2, L0665: 2, L0602: 2, S0136: 2, L0751: 2, L0779: 2, S0442: 1, L0717: 1, L0738: 1, T0010: 1, S0003: 1,		

HPDQX94	991761	246	90 - 650	2421		4q28-q31	
				Asp-15 to Ser-25, Ser-33 to Val-38, Lys-181 to Phe-187.	H0622: 1, H0673: 1, H0674: 1, H0388: 1, H0412: 1, T0041: 1, S0422: 1, S0426: 1, L0638: 1, L0662: 1, L0768: 1, L0766: 1, L0775: 1, L0805: 1, L0655: 1, L0657: 1, L0512: 1, L0659: 1, L0663: 1, L0664: 1, H0670: 1, S0406: 1, H0678: 1, L0745: 1, L0756: 1, L0752: 1, S0436: 1, L0581: 1 and L0601: 1.	L0747: 11, L0770: 6, S0404: 6, L0752: 6, L0748: 5, L0776: 4, L0755: 4, L0731: 4, L0759: 4, S0442: 3, H0722: 3, S0438: 3, L0775: 3, L0375: 3, L0779: 3, T0049: 2, S0358: 2, H0730: 2, H0586: 2, T0048: 2, L0766: 2, H0690: 2, H0658: 2, L0750: 2, S0412: 2, H0713: 1, H0662: 1, S0354: 1, S0376: 1, S0360: 1,	107250, 134820, 134820, 134820, 134830, 134850, 134850, 181600, 189800, 266300

Clone	cDNA	SEQ NT	ORF nt	SEQ AA	Clone distribution	Chrom.	OMIM
HEAAY09	992678	247	40 - 390	2422	S0410: 1, H0741: 1, H0645: 1, H0438: 1, H0497: 1, H0643: 1, H0632: 1, L0622: 1, H0575: 1, H0231: 1, H0009: 1, H0081: 1, H0014: 1, H0373: 1, S0366: 1, H0063: 1, S0440: 1, L0772: 1, L0764: 1, L0526: 1, L0541: 1, S0374: 1, S0148: 1, H0593: 1, S0126: 1, H0666: 1, S0328: 1, H0710: 1, H0522: 1, H0696: 1, S0206: 1, L0740: 1, L0749: 1, L0753: 1, L0758: 1, H0445: 1, S0434: 1, S0436: 1, S0026: 1 and H0721: 1. H0369: 1 and H0529: 1.	13q14	109543, 600631, 601499
HPDRH78	992780	248	115 - 1371	2423	H0038: 6, L0663: 4, L0601: 4, S0442: 3, L0157: 3, L0770: 3, L0665: 3, S0436: 3, H0341: 2, H0125: 2, H0360: 2, H0318: 2, H0328: 2, H0615: 2,		

T0023: 2, H0561: 2, S0440: 2, L0766: 2, L0809: 2, H0547: 2, H0519: 2, S0126: 2, H0659: 2, H0672: 2, S0330: 2, L0754: 2, L0745: 2, L0750: 2, H0506: 2, H0265: 1, H0556: 1, S0040: 1, H0717: 1, H0294: 1, H0583: 1, H0657: 1, L0785: 1, H0669: 1, S0420: 1, L0005: 1, S0376: 1, H0619: 1, H0351: 1, S0222: 1, S0220: 1, H0431: 1, T0039: 1, H0618: 1, T0110: 1, H0570: 1, H0569: 1, L0471: 1, H0292: 1, H0031: 1, L0055: 1, H0166: 1, H0169: 1, H0068: 1, S0036: 1, H0163: 1, H0359: 1, S0450: 1, H0647: 1, H0646: 1, S0344: 1, L0638: 1, L0372: 1, L0641: 1, L0643: 1, L0662: 1, L0768: 1, L0775: 1, L0653: 1, L0776: 1,

| HLMHG68 | 992900 | 249 | 19 - 774 | 2424 | Gln-2 to Ala-8, Asn-18 to Pro-28, Ala-129 to Asp-135, Ser-161 to Ser-171, Val-242 to Arg-250. | AR055: 28, AR039: 26, AR060: 21, AR033: 20, AR052: 17, AR089: 16, AR096: 16, AR104: 15, AR053: 15, AR061: 11 L0751: 6, L0783: 4, H0672: 4, L0805: 2, L0752: 2, L0758: 2, H0657: 1, H0255: 1, H0638: 1, S0418: 1, S0442: 1, H0351: 1, H0587: 1, H0256: 1, | L0512: 1, L0783: 1, L0382: 1, L0532: 1, L0666: 1, S0374: 1, L0438: 1, H0520: 1, H0593: 1, H0690: 1, H0682: 1, H0658: 1, S0380: 1, S0044: 1, S0146: 1, S0406: 1, S3012: 1, S0027: 1, S0028: 1, L0746: 1, L0777: 1, L0731: 1, S0031: 1, S0434: 1, L0599: 1, H0668: 1, H0665: 1, S0276: 1, H0423: 1, S0424: 1, UNKWN: 1 and L0600: 1. |

HODFO57	992973	250	2 - 811	2425	Trp-31 to Thr-39, Asn-71 to Gln-76, Pro-134 to Thr-150, Lys-238 to Lys-243.	
HOCPZ44	993380	251	139 - 540	2426	Arg-1 to Glu-6, Arg-52 to Ala-58, Phe-72 to Leu-79, Gly-88 to Glu-93, Tyr-124 to Arg-134.	L0518: 4, S0356: 3, H0617: 3, L0777: 3, H0486: 2, H0544: 2, H0545: 2, H0373: 2, H0547: 2, H0660: 2, L0757: 2, L0604: 2, H0423: 2, H0656: 1, H0341: 1, H0484: 1, H0483: 1, H0661: 1, S0360: 1, S0045: 1,

Column for HODFO57 list:

L0623: 1, H0014: 1, H0051: 1, S0388: 1, H0688: 1, H0428: 1, H0424: 1, H0213: 1, H0401: 1, H0111: 1, H0617: 1, H0163: 1, H0063: 1, H0551: 1, T0041: 1, S0002: 1, L0764: 1, L0648: 1, L0662: 1, L0650: 1, L0774: 1, L0523: 1, L0378: 1, L0655: 1, L4501: 1, H0690: 1, H0659: 1, H0658: 1, H0521: 1, H0436: 1, L0777: 1 and L0601: 1.

| HPAMU38 | 993403 | 252 | 69 - 821 | 2427 | Gly-23 to Lys-28, Ser-37 to Gly-42, Lys-90 to Asp-101, Glu-175 to Phe-182, Glu-245 to Thr-251. | L0439: 8, L0774: 4, L0731: 4, H0622: 3, H0617: 3, S0002: 3, L0662: 3, L0438: 3, L0777: 3, S0134: 2, L0717: 2, H0370: 2, H0052: 2, H0596: 2, L0163: 2, H0163: 2, L0769: 2, L0768: 2, L0766: 2, L0666: 2, H0682: 2, L0740: 2, L0752: 2, L0757: 2, | S0132: 1, S0300: 1, H0411: 1, H0438: 1, H0586: 1, H0574: 1, T0109: 1, H0156: 1, H0318: 1, H0251: 1, H0014: 1, T0079: 1, H0615: 1, T0023: 1, H0674: 1, S0036: 1, H0038: 1, H0040: 1, H0616: 1, T0067: 1, T0042: 1, L0475: 1, S0422: 1, H0529: 1, H0520: 1, H0682: 1, L0740: 1, L0749: 1, L0758: 1, L0759: 1, L0588: 1, L0362: 1, S0276: 1, S0196: 1, H0543: 1 and H0506: 1. |

HNGGK47	993602	253	265 - 372	2428	Trp-26 to Lys-36.	L0759: 2, L0605: 2, S0040: 1, H0583: 1, S0001: 1, S0282: 1, H0255: 1, H0669: 1, H0662: 1, S0354: 1, S0278: 1, S6022: 1, H0549: 1, S6014: 1, H0438: 1, H0427: 1, H0618: 1, S0010: 1, S0049: 1, H0150: 1, H0009: 1, H0050: 1, H0012: 1, H0620: 1, H0057: 1, S0388: 1, H0252: 1, T0067: 1, H0488: 1, H0646: 1, S0142: 1, L0770: 1, L0761: 1, L0648: 1, L0649: 1, L0803: 1, L0375: 1, L0776: 1, L0659: 1, L0783: 1, L0665: 1, H0144: 1, H0519: 1, H0593: 1, H0690: 1, H0518: 1, L0611: 1, S3012: 1, L0754: 1, L0747: 1, L0755: 1, L0758: 1, H0653: 1, H0665: 1, S0276: 1 and H0422: 1. AR055: 8, AR033: 6, AR089: 6, AR060: 6,

					AR104: 5, AR039: 5, AR096: 4, AR061: 4, AR053: 4, AR052: 4 L0522: 3, L0748: 2, H0171: 1, H0686: 1, L0034: 1, H0615: 1, L0764: 1, L0794: 1, S0052: 1, S0374: 1 and L0601: 1.
HODGN51	993754	254	94 - 342	2429	Lys-12 to Ser-18, Lys-20 to Lys-25, Thr-38 to His-43, Lys-53 to Cys-64.	H0615: 3
HODCT60	993806	255	212 - 559	2430	Ile-7 to Trp-17, Asn-54 to Lys-64, Thr-85 to Met-91.	S0001: 1, H0328: 1 and H0615: 1.
HAQBV81	993918	256	3 - 623	2431	Gln-1 to Arg-7, Gly-18 to Thr-24, Glu-26 to Glu-32, His-76 to Thr-88, Gln-122 to His-129, Pro-184 to Glu-190.	L0809: 7, L0758: 7, L0754: 5, S0007: 4, L0662: 4, L0794: 4, L0665: 4, H0333: 3, L0769: 3, L0761: 3, L0768: 3, L0803: 3, L0439: 3, H0395: 2, S0222: 2, H0039: 2, H0124: 2, S0036: 2, L0535: 2, L0666: 2, H0658: 2, L0751: 2, L0747: 2, L0759: 2, L0591: 2, L0485: 2, H0624: 1, H0716: 1,

HDTGF49	993931	257	1040 - 1174	2432		
				H0295: 1, H0402: 1, S0418: 1, S0442: 1, S0132: 1, H0619: 1, H0415: 1, H0586: 1, L0623: 1, H0486: 1, H0013: 1, S0280: 1, L0021: 1, H0618: 1, H0318: 1, H0052: 1, H0251: 1, H0123: 1, H0050: 1, H0012: 1, S0051: 1, H0179: 1, H0615: 1, T0006: 1, H0673: 1, H0135: 1, H0040: 1, H0087: 1, H0264: 1, H0100: 1, L0763: 1, L5565: 1, L0667: 1, L0772: 1, L0644: 1, L0775: 1, L0375: 1, L0805: 1, L0655: 1, L0659: 1, L0526: 1, L0663: 1, S0052: 1, H0682: 1, H0660: 1, S0028: 1, L0743: 1, L0750: 1, L0756: 1, L0779: 1, L0777: 1, L0755: 1, L0592: 1, H0136: 1 and S0424: 1.	H0486: 2, H0171: 1, H0657: 1, S0360: 1,	

| HOGBN62 | 994134 | 258 | 152 – 448 | 2433 | Phe-12 to Tyr-22, Lys-34 to Ile-44. | H0587: 1, H0013: 1, H0318: 1, H0688: 1, L0793: 1 and L0748: 1. | L0794: 6, L0438: 4, L0758: 4, H0656: 3, L0766: 3, L0748: 3, L0747: 3, L0753: 3, L0731: 3, H0662: 2, H0013: 2, H0529: 2, L0655: 2, H0659: 2, L0439: 2, L0751: 2, L0779: 2, L0588: 2, H0422: 2, L0785: 1, S0420: 1, H0599: 1, S0010: 1, H0327: 1, H0024: 1, H0051: 1, H0083: 1, L0194: 1, L0055: 1, H0673: 1, H0038: 1, H0551: 1, H0561: 1, S0002: 1, L0770: 1, L0761: 1, L0764: 1, L0768: 1, L0774: 1, L0775: 1, L0806: 1, L0659: 1, L0519: 1, L0666: 1, S0126: 1, H0435: 1, S0330: 1, S0380: 1, S3014: 1, S0260: 1, L0592: 1, L0485: 1 and L0362: 1. |

HSKGR42	994234	259	126 - 410	2434	Asp-8 to Glu-16, Thr-24 to Lys-35, Asn-37 to Glu-44, Leu-65 to Asp-95.	H0519: 1 and S3014: 1.	
HOEBQ85	994356	260	1065 - 706	2435		L0747: 4, L0758: 3, L0794: 2, L0649: 2, L0749: 2, L0759: 2, H0624: 1, H0333: 1, L0598: 1, L0773: 1, L0661: 1, L4501: 1, S0126: 1, H0682: 1, S0328: 1, H0521: 1, L0748: 1, L0750: 1, L0780: 1, L0755: 1 and S0436: 1.		
HOPJG01	994536	261	1390 - 257	2436	Ala-41 to Ser-46, Gly-57 to Gly-62, Glu-91 to Asn-111, Gln-113 to Pro-120, Val-128 to Ser-133, His-142 to Arg-149, Thr-177 to Leu-184, Arg-206 to Ile-214, Phe-261 to Trp-270, Asn-298 to Phe-305, Gln-315 to Gly-320.	H0052: 25, T0006: 15, L0596: 12, S0222: 11, H0009: 10, L0753: 10, H0441: 9, L0439: 9, L0752: 9, S0358: 8, H0253: 8, H0618: 7, H0231: 7, L0769: 7, H0144: 7, S0374: 7, H0550: 6, L0775: 6, L0745: 6, L0747: 6, S6024: 5, H0597: 5, H0178: 5, S0388: 5, S0051: 5, H0399: 5, L0750: 5, L0731: 5, S0007: 4, H0351: 4,	14q32	123270, 245200, 251600, 270100, 276900

S0049: 4, H0204: 4,
H0100: 4, L0509: 4,
L0542: 4, L0783: 4,
L0742: 4, L0746: 4,
L0777: 4, L0366: 4,
S0300: 3, H0261: 3,
H0549: 3, H0497: 3,
H0156: 3, S0010: 3,
H0085: 3, N0006: 3,
S0003: 3, S0036: 3,
H0641: 3, L0770: 3,
L0499: 3, L0776: 3,
L0659: 3, L0665: 3,
H0519: 3, H0684: 3,
L0756: 3, L0758: 3,
L0608: 3, S0424: 3,
H0506: 3, H0624: 2,
H0170: 2, S6026: 2,
H0592: 2, S0346: 2,
H0196: 2, H0235: 2,
H0596: 2, H0150: 2,
H0103: 2, S0050: 2,
H0201: 2, T0010: 2,
H0213: 2, H0674: 2,
L0455: 2, H0038: 2,
L0764: 2, L0766: 2,
L0375: 2, L0782: 2,
L0528: 2, L0666: 2,
L0438: 2, H0520: 2,
H0672: 2, S0044: 2,

S0028: 2, L0744: 2,
S0260: 2, H0685: 1,
S0110: 1, H0176: 1,
S0442: 1, S0354: 1,
S0360: 1, S0410: 1,
H0411: 1, H0369: 1,
H0431: 1, H0438: 1,
H0333: 1, L0623: 1,
H0013: 1, H0069: 1,
H0427: 1, H0599: 1,
H0434: 1, H0251: 1,
H0183: 1, H0263: 1,
H0205: 1, H0232: 1,
H0545: 1, H0065: 1,
H0569: 1, H0172: 1,
H0081: 1, H0012: 1,
H0620: 1, H0014: 1,
S0362: 1, L0163: 1,
H0051: 1, H0408: 1,
S6028: 1, H0266: 1,
H0688: 1, H0428: 1,
H0424: 1, H0617: 1,
H0673: 1, H0169: 1,
L0456: 1, H0135: 1,
H0059: 1, H0102: 1,
S0038: 1, S0112: 1,
H0494: 1, H0130: 1,
H0529: 1, L0369: 1,
L0520: 1, L0762: 1,
L0500: 1, L0638: 1,

| HKBAK06 | 994596 | 262 | 213 - 410 | 2437 | Asn-1 to Arg-7, Ser-26 to Arg-31, Gln-36 to Trp-41, Pro-59 to Lys-66. | L0627: 1, L0372: 1, L0646: 1, L0363: 1, L0768: 1, L0364: 1, L0803: 1, L0774: 1, L0784: 1, L0805: 1, L0653: 1, L0657: 1, L0526: 1, L0384: 1, L0809: 1, L0530: 1, L0368: 1, L0664: 1, H0547: 1, H0689: 1, H0682: 1, H0659: 1, H0660: 1, L0355: 1, S0378: 1, S3012: 1, S3014: 1, L0741: 1, L0748: 1, L0751: 1, L0786: 1, L0757: 1, S0031: 1, H0445: 1, L0593: 1, L0595: 1, S0106: 1, S0011: 1; S0460: 1 and H0008: 1. L0748: 25, L0750: 16, S0126: 6, L0751: 6, L0752: 6, L0758: 6, L0770: 5, L0769: 5, L0771: 5, L0740: 5, L0754: 5, L0749: 5, L0757: 5, H0341: 4, H0494: 4, L0806: 4, H0547: 4, H0666: 4, L0747: 4, L0731: 4, | 8q21 | 124080, 202010, 202010, 214400, 602476, 602667 |

S0026: 4, H0663: 3, H0413: 3, S0276: 3, H0685: 2, H0650: 2, H0393: 2, S0278: 2, H0392: 2, H0486: 2, H0535: 2, H0412: 2, S0440: 2, L0646: 2, L0764: 2, L0662: 2, L0768: 2, L0774: 2, L0793: 2, H0144: 2, S0374: 2, H0659: 2, S0152: 2, H0134: 2, L0743: 2, L0744: 2, L0588: 2, H0624: 1, H0265: 1, S0040: 1, S0358: 1, S0408: 1, S0045: 1, H0333: 1, H0250: 1, H0427: 1, H0041: 1, H0050: 1, L0471: 1, H0266: 1, H0328: 1, H0615: 1, H0031: 1, H0606: 1, H0212: 1, H0038: 1, H0634: 1, H0551: 1, H0488: 1, H0560: 1, H0625: 1, H0633: 1, H0647: 1, H0646: 1, S0422: 1, H0529: 1, L0762: 1, L0772: 1, L0643: 1, L0773: 1,

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HKGCN61	994664	263	1016 - 486	2438	Pro-1 to Ser-8.		12q24.1	124200, 147440, 160781, 181405, 261600, 261600, 601406, 601620, 601621
					L0767: 1, L0364: 1, L0766: 1, L0775: 1, L0805: 1, L0776: 1, L0655: 1, L0518: 1, L0382: 1, L0666: 1, L0663: 1, H0711: 1, H0690: 1, H0682: 1, H0670: 1, S0380: 1, S0013: 1, H0696: 1, H0704: 1, H0631: 1, H0595: 1, L0592: 1, L0581: 1, L0594: 1, L0601: 1, H0668: 1, S0194: 1, H0543: 1 and H0422: 1.	L0748: 9, L0758: 6, L0775: 5, L0659: 4, L0779: 4, L0752: 4, S0360: 3, H0431: 3, H0014: 3, H0031: 3, H0641: 3, L0764: 3, L0776: 3, L0655: 3, L0666: 3, L0742: 3, L0757: 3, L0759: 3, H0657: 2, S0358: 2, H0581: 2, H0373: 2, H0615: 2, H0628: 2, H0616: 2, L0770: 2, L0766: 2, L0774: 2, L0375: 2, L0787: 2,		

H0648: 2, H0521: 2,
H0436: 2, S0027: 2,
L0743: 2, L0740: 2,
L0747: 2, L0756: 2,
L0731: 2, L0596: 2,
L0588: 2, H0686: 1,
S6024: 1, H0583: 1,
H0656: 1, H0669: 1,
H0664: 1, S0222: 1,
H0438: 1, H0574: 1,
L0622: 1, L0586: 1,
H0599: 1, H0042: 1,
H0004: 1, S0010: 1,
S0182: 1, S0474: 1,
H0052: 1, H0309: 1,
H0596: 1, H0545: 1,
S0388: 1, H0687: 1,
H0039: 1, H0622: 1,
T0006: 1, H0644: 1,
H0165: 1, H0166: 1,
H0124: 1, S0036: 1,
H0038: 1, H0551: 1,
H0100: 1, H0560: 1,
H0646: 1, H0538: 1,
S0422: 1, S0426: 1,
L0763: 1, L0637: 1,
L0761: 1, L0372: 1,
L0646: 1, L0645: 1,
L0521: 1, L0662: 1,
L0806: 1, L0379: 1,

| HTXDY55 | 994699 | 264 | 2 - 289 | 2439 | L0657: 1, L0656: 1, L0809: 1, L0647: 1, L0788: 1, L0790: 1, L0664: 1, L0665: 1, S0374: 1, H0519: 1, H0689: 1, H0682: 1, H0659: 1, H0672: 1, H0651: 1, S0330: 1, H0539: 1, S0380: 1, H0522: 1, H0696: 1, S0028: 1, S0206: 1, L0745: 1, L0749: 1, L0780: 1, L0755: 1, H0445: 1, L0605: 1, L0366: 1 and H0423: 1. L0659: 4, L0666: 4, L0665: 4, H0486: 3, L0663: 3, L0759: 3, L0471: 2, H0288: 2, H0031: 2, L0769: 2, L0646: 2, L0794: 2, L0766: 2, L0657: 2, L0664: 2, L0601: 2, H0422: 2, H0265: 1, H0556: 1, H0224: 1, H0686: 1, H0685: 1, L0785: 1, S0356: 1, S0358: 1, S0376: 1, S0360: 1, S0007: 1, S0046: 1, S0132: 1, | 5p15.2-pter |

HFOYI37	994776	265	19 - 513	2440	5q
				Gly-18 to Gly-28, Arg-30 to Lys-51, Ala-81 to Ala-87, Lys-157 to Ser-165.	H0550: 1, H0586: 1, H0025: 1, H0318: 1, H0457: 1, H0266: 1, H0188: 1, H0252: 1, H0328: 1, H0428: 1, L0055: 1, H0135: 1, H0040: 1, H0551: 1, H0494: 1, H0560: 1, S0150: 1, S0344: 1, L0625: 1, L0761: 1, L0553: 1, L0662: 1, L0649: 1, L0803: 1, L0650: 1, L0805: 1, L0606: 1, H0519: 1, H0684: 1, H0435: 1, H0660: 1, H0648: 1, S0380: 1, S0152: 1, H0696: 1, L0786: 1, L0780: 1, L0755: 1, L0596: 1, H0216: 1 and H0543: 1. S0212: 2, S0360: 2, S0276: 2, H0218: 1, H0125: 1, H0587: 1, H0497: 1, H0581: 1, H0251: 1, H0354: 1, H0428: 1, H0413: 1, L0526: 1, H0522: 1, H0627: 1, S0192: 1 and S0194: 1.

HOFNL18	994874	266	1 - 405	2441	Ser-26 to Pro-33.	AR039: 15, AR089: 8, AR033: 8, AR096: 8, AR053: 7, AR052: 7, AR060: 5, AR055: 5, AR104: 5, AR061: 3 H0415: 1 and H0414: 1.
HOFNT57	994954	267	3 - 1175	2442	Asp-1 to Gly-15.	
HCBMT45	994993	268	1670 - 360	2443	Ser-157 to Asn-167, Asn-192 to Lys-198.	L0731: 8, L0757: 6, L0794: 5, L0809: 5, L0770: 3, L0803: 3, L0789: 3, L0750: 3, L0759: 3, H0038: 2, L0769: 2, L0805: 2, L0659: 2, L0665: 2, S0037: 2, L0742: 2, L0743: 2, L0748: 2, L0754: 2, L0747: 2, L0758: 2, S0436: 2, L0599: 2, L0608: 2, H0624: 1, H0661: 1, H0638: 1, S0358: 1, H0728: 1, H0733: 1, H0586: 1, H0587: 1, H0642: 1, S0010: 1, H0052: 1, H0544: 1, H0046: 1, L0471: 1, H0083: 1, H0179: 1, H0252: 1, H0688: 1, H0617: 1, H0606: 1,

HATDZ56	995200	269	120 - 1154	2444	Thr-23 to Pro-34, Glu-39 to Asp-83, Asn-89 to Lys-99, Asp-118 to Asp-128, Asn-135 to Glu-150, Glu-153 to Gly-168, Gly-181 to Thr-187, Arg-200 to Asp-205, Arg-273 to Ile-279, Thr-295 to Asp-300, Thr-316 to Cys-321.	L0438: 2, H0156: 1, H0004: 1, L0748: 1 and L0749: 1.	H0673: 1, H0135: 1, H0264: 1, H0059: 1, H0560: 1, S0440: 1, S0150: 1, H0633: 1, S0344: 1, S0002: 1, L3904: 1, L0800: 1, L0773: 1, L0804: 1, L0774: 1, L0775: 1, L0806: 1, H0144: 1, L0438: 1, H0519: 1, H0684: 1, H0435: 1, H0651: 1, H0521: 1, L0740: 1, L0749: 1, L0752: 1, H0595: 1, S0434: 1 and H0542: 1.	
HOCQI44	995229	270	2 - 520	2445	Ser-14 to Ala-21, Pro-80 to Tyr-85, Pro-99 to Gly-105,	L0771: 6, L0794: 4, L0748: 4, H0659: 3, L0749: 3, H0624: 2,		20

HN0JG43	995562	271	1 - 1002	2446	
					Lys-158 to Pro-173. H0663: 2, S0360: 2, L0769: 2, L0764: 2, H0660: 2, L0779: 2, L0608: 2, L0601: 2, S0026: 2, S0418: 1, S0410: 1, H0393: 1, L0579: 1, L0471: 1, H0266: 1, H0252: 1, H0673: 1, H0090: 1, H0038: 1, H0087: 1, H0413: 1, H0538: 1, H0695: 1, L0761: 1, L0642: 1, L0648: 1, L0768: 1, L0766: 1, L0381: 1, L0775: 1, L0376: 1, L0378: 1, L0806: 1, L0657: 1, L0658: 1, L0788: 1, L0663: 1, H0690: 1, H0682: 1, H0631: 1, L0751: 1, L0754: 1, L0747: 1, L0758: 1, L0759: 1 and H0543: 1.
					S0440: 4, H0543: 4, H0656: 3, H0539: 3, H0521: 3, H0650: 2, H0341: 2, H0620: 2, H0355: 2, H0068: 2, T0041: 2, H0529: 2, L0439: 2, H0171: 1,

HSPSB95	995590	272	2 - 838	2447	
				Pro-57 to Pro-64, Leu-137 to Ala-147, Ser-158 to Met-163,	S0114: 1, H0657: 1, S0356: 1, S0442: 1, S0354: 1, S0410: 1, H0580: 1, H0728: 1, S0046: 1, S0132: 1, S0476: 1, S0222: 1, H0610: 1, H0613: 1, H0600: 1, H0587: 1, H0013: 1, H0505: 1, H0318: 1, H0309: 1, H0046: 1, H0009: 1, L0471: 1, S0051: 1, H0356: 1, H0510: 1, S6028: 1, H0687: 1, H0292: 1, H0428: 1, H0708: 1, H0494: 1, H0560: 1, S0294: 1, S0210: 1, L0517: 1, L0647: 1, H0726: 1, H0547: 1, H0658: 1, H0670: 1, H0518: 1, S0152: 1, H0522: 1, S0044: 1, H0555: 1, S3014: 1, S0027: 1, L0753: 1, L0731: 1, L0362: 1, H0542: 1, H0423: 1 and H0506: 1. L0755: 16, L0754: 14, L0591: 11, S0408: 9, H0441: 9, L0748: 9,

Arg-239 to Phe-247, Leu-263 to Asn-268.	H0657: 7, L0776: 7, L0747: 7, H0135: 6, H0494: 6, L0649: 6, H0547: 6, L0439: 6, L0752: 6, L0758: 6, H0341: 5, H0046: 5, L0769: 5, L0771: 5, H0519: 5, L0731: 5, H0543: 5, S0134: 4, S0358: 4, S0360: 4, H0486: 4, H0083: 4, H0509: 4, L0774: 4, L0655: 4, L0438: 4, H0520: 4, L0777: 4, L0757: 4, H0265: 3, H0580: 3, S0132: 3, H0575: 3, H0581: 3, H0052: 3, L0471: 3, H0266: 3, H0687: 3, H0428: 3, H0551: 3, H0529: 3, L0517: 3, L0519: 3, L0666: 3, H0593: 3, H0658: 3, H0648: 3, H0521: 3, S0028: 3, L0742: 3, L0749: 3, L0597: 3, L0588: 3, L0589: 3, L0592: 3, L0485: 3, L0600: 3, H0624: 2, H0170: 2, S0418: 2,

S0420: 2, S0356: 2,
S0444: 2, H0208: 2,
S0045: 2, H0619: 2,
H0393: 2, L0717: 2,
H0586: 2, H0492: 2,
H0427: 2, H0318: 2,
S0049: 2, H0251: 2,
H0050: 2, H0242: 2,
H0288: 2, S0214: 2,
H0615: 2, H0622: 2,
H0031: 2, H0644: 2,
H0628: 2, H0087: 2,
H0413: 2, H0056: 2,
S0438: 2, S0440: 2,
S0150: 2, H0641: 2,
S0344: 2, S0422: 2,
L0764: 2, L0766: 2,
L0653: 2, L0659: 2,
L0665: 2, H0144: 2,
H0691: 2, H0689: 2,
H0711: 2, H0659: 2,
H0660: 2, H0672: 2,
H0710: 2, S0044: 2,
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L0740: 2, L0750: 2,
L0780: 2, L0753: 2,
H0445: 2, L0596: 2,
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L0595: 2, L0362: 2,

L0603: 2, H0136: 2,
H0423: 2, H0422: 2,
H0293: 2, H0171: 1,
T0002: 1, H0222: 1,
H0159: 1, H0685: 1,
H0295: 1, H0294: 1,
L0785: 1, H0661: 1,
H0663: 1, S0376: 1,
H0340: 1, H0351: 1,
S0222: 1, H0392: 1,
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H0013: 1, H0250: 1,
H0156: 1, H0599: 1,
H0042: 1, T0082: 1,
S0010: 1, H0263: 1,
T0115: 1, T0110: 1,
H0546: 1, H0545: 1,
H0019: 1, H0012: 1,
H0047: 1, H0197: 1,
H0023: 1, H0020: 1,
H0107: 1, T0010: 1,
H0510: 1, S0250: 1,
S0022: 1, H0328: 1,
L0194: 1, T0006: 1,
H0553: 1, L0055: 1,
H0674: 1, L0456: 1,
H0708: 1, H0068: 1,
H0376: 1, H0163: 1,
H0040: 1, H0634: 1,
T0067: 1, H0487: 1,

H0412: 1, H0623: 1, H0059: 1, H0100: 1, S0016: 1, H0633: 1, H0646: 1, H0649: 1, S0144: 1, L0598: 1, L0369: 1, L0763: 1, L0631: 1, L0770: 1, L0637: 1, L0761: 1, L0373: 1, L0372: 1, L0773: 1, L0662: 1, L0626: 1, L0364: 1, L0794: 1, L0549: 1, L0498: 1, L0803: 1, L0775: 1, L0375: 1, L0651: 1, L0661: 1, L0540: 1, L0518: 1, L0783: 1, L0383: 1, L0382: 1, L0809: 1, L0528: 1, L0368: 1, L0532: 1, L0663: 1, L0664: 1, S0216: 1, H0698: 1, S0374: 1, S0122: 1, H0683: 1, H0684: 1, H0435: 1, H0670: 1, S0328: 1, S0330: 1, H0539: 1, S0380: 1, H0522: 1, S0013: 1, H0696: 1, H0134: 1, S3012: 1, S0027: 1, L0759: 1,

HCORG29	995806	273	1475 - 714	2448		
				Gly-1 to Ala-15, Ala-38 to Asp-46, Thr-56 to Leu-63, Glu-77 to Gly-83, Ile-102 to Gly-111, Pro-120 to Gly-128, Pro-130 to Asp-143, Lys-197 to Ser-211, Pro-217 to Tyr-247.	H0556: 4, S0027: 4, S0358: 3, H0318: 3, H0545: 3, L0776: 3, S0380: 3, L0439: 3, L0747: 3, H0265: 2, H0341: 2, H0661: 2, S0045: 2, H0351: 2, H0012: 2, H0039: 2, L0766: 2, S0374: 2, S0126: 2, S0330: 2, S0152: 2, S3014: 2, S0206: 2, L0748: 2, L0740: 2, L0749: 2, L0755: 2, H0423: 2, H0624: 1, L0615: 1, S0040: 1, H0294: 1, H0650: 1, H0657: 1, H0656: 1, H0484: 1, H0483: 1, H0255: 1, H0663: 1, S0418: 1, S0420: 1, S0356: 1, S0442: 1, S0360: 1, H0637: 1, H0580: 1, S0046: 1, S0132: 1, H0586: 1, H0486: 1, H0013: 1, H0042: 1, H0052: 1, H0596: 1,	H0444: 1, L0681: 1, S0011: 1, S0192: 1, S0276: 1 and H0542: 1.

| HCRNO02 | 995894 | 274 | 537 - 319 | 2449 | Phe-3 to Ala-9. | H0327: 1, S0388: 1, H0275: 1, H0083: 1, S0022: 1, S0214: 1, H0252: 1, H0604: 1, H0031: 1, H0628: 1, H0673: 1, H0135: 1, H0090: 1, H0591: 1, H0616: 1, H0551: 1, H0264: 1, H0623: 1, H0059: 1, H0494: 1, L0475: 1, H0561: 1, H0131: 1, S0344: 1, L0770: 1, L0769: 1, L0772: 1, L0804: 1, L0774: 1, L0655: 1, L0532: 1, H0144: 1, H0593: 1, H0659: 1, H0670: 1, H0704: 1, H0215: 1, S0406: 1, L0745: 1, L0596: 1, L0588: 1, S0026: 1, H0136: 1, S0276: 1, H0542: 1, H0543: 1 and S0460: 1. | S0356: 1 and L0780: 1. | 8q21 | - | 124080, 202010, 202010, 214400, 602476, 602667 |

| HCBOI79 | 996247 | 275 | 42 - 701 | 2450 | Pro-9 to Gln-15, Glu-37 to Ala-49, Glu-70 to Leu-78, Thr-99 to Thr-122, Leu-144 to Gln-150, Gln-161 to Arg-167. | H0670: 3, H0624: 1, H0661: 1, S0354: 1, S0360: 1, S0278: 1, H0559: 1, H0150: 1, H0024: 1, H0510: 1, H0551: 1, H0413: 1, S0328: 1, H0555: 1 and L0759: 1. |
| HVCAB73 | 996337 | 276 | 84 - 1259 | 2451 | Arg-4 to Gly-24, Lys-47 to Phe-55, Lys-61 to Ala-67, Gly-108 to Thr-114, Pro-184 to Pro-191, Pro-292 to Arg-299, Pro-355 to Glu-392. | H0046: 22, H0547: 15, L0748: 13, S0152: 9, H0013: 7, H0009: 7, H0031: 7, H0529: 7, H0519: 7, L0471: 6, H0024: 6, H0266: 6, H0090: 6, H0520: 6, H0542: 6, H0543: 6, H0521: 5, L0439: 5, H0422: 5, S0420: 4, H0373: 4, H0040: 4, H0494: 4, H0561: 4, L0747: 4, L0592: 4, L0593: 4, L0595: 4, S0026: 4, H0423: 4, H0556: 3, H0657: 3, H0656: 3, L0005: 3, S0354: 3, S0408: 3, H0580: 3, S0045: 3, S0046: 3, S0132: 3, S0278: 3, H0586: 3, T0110: 3, H0620: 3, |

H0083: 3, S0022: 3,
H0615: 3, H0135: 3,
H0591: 3, H0623: 3,
H0538: 3, H0144: 3,
L0438: 3, H0624: 2,
H0265: 2, T0002: 2,
S0116: 2, H0341: 2,
S0418: 2, S0442: 2,
S0358: 2, H0619: 2,
S0222: 2, H0587: 2,
H0497: 2, H0331: 2,
H0486: 2, H0069: 2,
H0635: 2, H0575: 2,
H0318: 2, H0581: 2,
H0052: 2, H0544: 2,
H0292: 2, S0003: 2,
H0622: 2, H0553: 2,
H0038: 2, H0634: 2,
H0551: 2, H0379: 2,
H0412: 2, H0056: 2,
H0100: 2, S0144: 2,
S0142: 2, L0626: 2,
S0126: 2, H0435: 2,
H0666: 2, S0330: 2,
H0436: 2, H0626: 2,
H0631: 2, S0027: 2,
S0028: 2, L0740: 2,
L0750: 2, H0445: 2,
S0434: 2, L0588: 2,
L0600: 2, H0170: 1,

H0158: 1, S0040: 1, S0342: 1, S0134: 1, H0650: 1, H0255: 1, H0661: 1, H0663: 1, H0449: 1, H0125: 1, S0444: 1, H0675: 1, H0393: 1, H0370: 1, H0357: 1, H0333: 1, H0643: 1, H0574: 1, T0039: 1, H0706: 1, H0036: 1, H0390: 1, S0346: 1, H0421: 1, S0049: 1, H0196: 1, H0251: 1, H0085: 1, H0562: 1, H0123: 1, H0047: 1, H0023: 1, H0014: 1, H0051: 1, H0071: 1, H0356: 1, H0239: 1, H0594: 1, H0188: 1, H0687: 1, H0290: 1, S0312: 1, S0214: 1, L0194: 1, H0604: 1, H0628: 1, H0169: 1, H0674: 1, H0212: 1, S0366: 1, H0063: 1, H0269: 1, T0069: 1, L0351: 1, L0435: 1, T0041: 1, T0042: 1, S0440: 1, H0509: 1, S0150: 1,

					Clones		
HSDJH04	996619	277	114 - 419	2452	Arg-1 to Ser-20.	H0130: 1, H0633: 1, S0210: 1, L0598: 1, L0625: 1, L0649: 1, L0776: 1, L0517: 1, L0382: 1, L0367: 1, L0793: 1, L0663: 1, H0697: 1, H0593: 1, H0689: 1, H0670: 1, H0660: 1, S0380: 1, H0522: 1, H0694: 1, H0134: 1, S0406: 1, S0037: 1, L0754: 1, L0752: 1, L0755: 1, L0757: 1, L0759: 1, L0596: 1, L0599: 1, H0665: 1, H0667: 1, H0136: 1, S0196: 1, S0452: 1 and H0506: 1.	11p15	108985, 186921, 602092
HSOAN18	996804	278	630 - 409	2453	Val-1 to Asn-6.	L0731: 3, H0632: 1, H0052: 1, H0628: 1, L0766: 1, L0636: 1, L0545: 1, L0543: 1, H0658: 1, L0740: 1, L0750: 1, L0752: 1, S0260: 1 and H0293: 1.		
HHEHF49	996874	279	698 - 222	2454		L0755: 3, L0766: 2, L0794: 1, L0759: 1 and H0343: 1.		
						H0684: 38, H0703: 27, H0685: 23, H0717: 21,		

HCHCF36	996903	280	10 - 711	2455	Lys-43 to Tyr-48, Arg-73 to Arg-79, Pro-183 to Gly-188, Pro-192 to Ser-201.	H0688: 21, H0687: 19, H0542: 19, H0722: 15, H0699: 14, H0716: 12, H0725: 9, H0494: 8, H0696: 7, H0689: 5, H0555: 5, H0708: 4, H0545: 3, H0695: 3, H0723: 3, H0724: 3, H0683: 3, H0521: 3, H0686: 2, H0713: 2, H0580: 2, H0546: 2, H0509: 2, H0593: 2, H0710: 2, H0709: 2, H0543: 2, H0712: 2, H0650: 1, H0675: 1, H0602: 1, H0586: 1, H0510: 1, H0488: 1, H0560: 1, S0422: 1, H0698: 1, H0691: 1, H0690: 1, H0682: 1, H0694: 1 and S0424: 1. L0769: 6, L0747: 5, H0619: 2, L0761: 2, L0794: 2, L0803: 2, L0659: 2, L0809: 2, L0744: 2, L0745: 2, H0583: 1, H0483: 1, H0580: 1, H0592: 1, H0581: 1, H0052: 1, H0264: 1, H0561: 1,	19q13.1-q13.2	107741, 113900, 122720, 122720, 126340, 126391, 160900, 164731, 172400,

| HAHCK58 | 997127 | 281 | 1 - 228 | 2456 | Glu-1 to Thr-9, Asn-17 to Ser-34. | L0748: 16, S0007: 7, H0360: 7, H0046: 6, L0803: 5, L0747: 5, L0771: 4, L0794: 4, L0731: 4, H0486: 3, L0666: 3, L0663: 3, L0665: 3, L0439: 3, L0758: 3, H0637: 2, H0261: 2, S0222: 2, H0052: 2, S0051: 2, H0622: 2, H0169: 2, L0598: 2, L0637: 2, H0144: 2, H0436: 2, L0754: 2, H0170: 1, S0134: 1, H0650: 1, S0116: 1, S0282: 1, S0418: 1, S0376: 1, H0580: 1, S0045: 1, H0393: 1, L0622: 1, L0623: 1, S0280: 1, L0762: 1, L0766: 1, L0791: 1, L0666: 1, H0547: 1, H0435: 1, H0521: 1, L0751: 1, L0750: 1 and L0780: 1. | 172400, 173850, 180901, 180901, 207750, 221770, 248600, 258501, 600918, 602716 |

| HETIJ06 | 997165 | 282 | 41 - 385 | 2457 | Leu-6 to Ser-11. | L0021: 1, H0599: 1, H0318: 1, S0474: 1, H0150: 1, H0041: 1, H0050: 1, S0388: 1, H0271: 1, S0003: 1, H0673: 1, L0456: 1, H0135: 1, H0412: 1, H0056: 1, H0623: 1, S0386: 1, S0112: 1, H0494: 1, S0144: 1, S0344: 1, H0529: 1, L0763: 1, L0638: 1, L0646: 1, L0764: 1, L0766: 1, L0650: 1, L0375: 1, L0653: 1, L0776: 1, L0783: 1, L0543: 1, L0647: 1, L0787: 1, L0788: 1, L0664: 1, L0352: 1, H0547: 1, H0593: 1, H0690: 1, H0435: 1, H0670: 1, H0648: 1, H0672: 1, H0651: 1, H0539: 1, H0521: 1, H0522: 1, S3014: 1, S0027: 1, S0206: 1, L0759: 1, S0434: 1, L0595: 1, H0668: 1, S0026: 1 and H0293: 1. S0402: 1, S0360: 1, |

| HAPOE30 | 997595 | 283 | 244 - 759 | 2458 | Glu-6 to Trp-12, Leu-36 to Glu-57, Pro-74 to Asn-88, Ser-119 to Glu-131, Pro-139 to Asp-153. | L0777: 9, L0803: 5, L0748: 5, L0663: 4, L0754: 4, L0747: 4, L0753: 4, L0758: 4, L0766: 3, H0659: 3, L0763: 2, L0519: 2, L0665: 2, S0126: 2, L0602: 2, L0439: 2, L0750: 2, T0002: 1, H0686: 1, S0040: 1, S0116: 1, S0222: 1, H0575: 1, H0122: 1, H0004: 1, H0309: 1, L0040: 1, L0163: 1, H0028: 1, H0615: 1, H0040: 1, L0770: 1, L0764: 1, L0773: 1, L0662: 1, L0794: 1, L0774: 1, L0805: 1, L0655: 1, L0657: 1, L0526: 1, L0809: 1, L0789: 1, L0666: 1, L0664: 1, T0068: 1, H0670: 1, H0672: 1, L0744: 1, L0740: 1, L0751: 1, L0749: 1, L0779: 1, L0752: 1, L0731: 1, L0759: 1, H0046: 1, H0252: 1 and H0428: 1. |

HRGDC33	997862	284	229 - 738	2459		L0591: 1 and S0011: 1.
HMTMB91	997873	285	1037 - 1174	2460	Lys-1 to Arg-46.	H0134: 1 and L0756: 1.

L0794: 11, L0803: 10, H0013: 6, H0090: 6, L0766: 6, L0663: 6, L0731: 6, H0457: 5, H0328: 5, L0493: 5, L0666: 5, L0777: 5, L0759: 5, L0754: 4, L0779: 4, H0305: 3, L0665: 3, H0144: 3, H0670: 3, H0696: 3, L0591: 3, H0657: 2, S0442: 2, S0360: 2, L0717: 2, H0600: 2, H0156: 2, H0590: 2, H0024: 2, H0615: 2, L0483: 2, T0042: 2, S0422: 2, H0529: 2, L0625: 2, L0805: 2, L0776: 2, L0655: 2, L0527: 2, S0374: 2, H0521: 2, H0436: 2, L0745: 2, L0588: 2, L0581: 2, L0361: 2, H0542: 2, S0424: 2, H0624: 1, H0171: 1, H0686: 1, T0049: 1, H0650: 1, H0656: 1,

H0341: 1, H0589: 1,
S0418: 1, S0356: 1,
S0358: 1, S0376: 1,
S0408: 1, H0329: 1,
S0045: 1, H0369: 1,
H0370: 1, H0455: 1,
H0602: 1, H0586: 1,
H0574: 1, H0486: 1,
S0280: 1, L0021: 1,
H0575: 1, H0036: 1,
H0318: 1, H0263: 1,
T0115: 1, H0545: 1,
L0157: 1, H0123: 1,
H0015: 1, S0388: 1,
S0051: 1, H0375: 1,
H0271: 1, H0188: 1,
S0003: 1, H0688: 1,
H0644: 1, L0055: 1,
H0163: 1, H0038: 1,
H0634: 1, H0551: 1,
L0475: 1, S0352: 1,
H0652: 1, S0208: 1,
L0640: 1, L0763: 1,
L0500: 1, L0769: 1,
L0646: 1, L0648: 1,
L0662: 1, L0498: 1,
L0804: 1, L0650: 1,
L0784: 1, L0806: 1,
L0653: 1, L0606: 1,
L0515: 1, L0659: 1,

HFAAD07	998059	286	238 - 957	2461	Ser-62 to Thr-67, Val-74 to Cys-79, Thr-118 to Gln-132, Glu-204 to Asp-219, Pro-225 to Arg-235.	L0809: 5, L0439: 4, L0591: 2, S6024: 1, H0341: 1, H0346: 1, S0356: 1, S0358: 1, S0360: 1, L0040: 1, H0457: 1, H0494: 1, L0518: 1, L0666: 1, L0665: 1, S0330: 1, H0521: 1, L0752: 1, L0731: 1, L0758: 1, L0590: 1 and L0599: 1.	3q28	165500, 600700
					L0526: 1, L0519: 1, L0788: 1, L0790: 1, L0791: 1, L0664: 1, S0296: 1, H0520: 1, H0547: 1, H0519: 1, S0126: 1, H0682: 1, H0659: 1, H0658: 1, H0660: 1, H0672: 1, S0380: 1, H0518: 1, H0525: 1, S0404: 1, S0406: 1, H0479: 1, S0432: 1, L0744: 1, L0750: 1, L0780: 1, L0753: 1, L0604: 1, S0106: 1, S0242: 1, S0196: 1, H0543: 1, H0423: 1 and S0452: 1.			
HE8TG67	998517	287	1211 - 1360	2462	Pro-24 to His-31.			

HACNC39	998533	288	36 - 380	2463	Glu-14 to Lys-25.	
						L0748: 9, L0769: 7, L0776: 6, L0747: 6, L0768: 5, L0775: 5, L0750: 5, S0358: 4, S0144: 4, L0763: 4, L0731: 4, L0757: 4, L0588: 4, H0657: 3, S0046: 3, H0545: 3, S0438: 3, S0422: 3, L0770: 3, L0517: 3, S0406: 3, L0755: 3, T0049: 2, H0341: 2, S0408: 2, S0410: 2, H0580: 2, S0222: 2, H0586: 2, L0622: 2, T0109: 2, H0083: 2, H0551: 2, H0100: 2, H0396: 2, S0440: 2, S0210: 2, L0520: 2, L0764: 2, L0767: 2, L5574: 2, L0540: 2, L0518: 2, L0809: 2, S0330: 2, S0380: 2, L0758: 2, S0031: 2, H0543: 2, H0170: 1, H0685: 1, H0716: 1, H0295: 1, S0212: 1, S0110: 1, S0282: 1, S0420: 1, S0444: 1, H0351: 1, H0411: 1,

S0278: 1, H0643: 1,
L0623: 1, H0427: 1,
H0575: 1, H0004: 1,
T0048: 1, T0001: 1,
H0196: 1, H0009: 1,
H0023: 1, T0003: 1,
S0388: 1, S0051: 1,
H0266: 1, H0628: 1,
H0124: 1, H0708: 1,
H0163: 1, H0038: 1,
H0040: 1, T0067: 1,
H0413: 1, H0494: 1,
H0625: 1, L0065: 1,
H0130: 1, H0641: 1,
H0633: 1, H0743: 1,
L0761: 1, L0772: 1,
L0646: 1, L0521: 1,
L0766: 1, L0561: 1,
L0774: 1, L0523: 1,
L0559: 1, L0634: 1,
L0783: 1, L0663: 1,
L0664: 1, L0565: 1,
H0547: 1, H0690: 1,
H0666: 1, H0672: 1,
H0710: 1, S0152: 1,
S0118: 1, S3014: 1,
S0027: 1, S0032: 1,
L0751: 1, L0752: 1,
S0308: 1, L0603: 1,
H0136: 1, H0423: 1 and

HCOQP78	998901	289	45 - 989	2464	Thr-10 to Ala-18, Pro-56 to His-64, Pro-66 to Leu-74, Ser-81 to Asp-86, Glu-93 to Trp-101, Leu-143 to Gln-151, Pro-162 to Asp-171, Thr-216 to Asp-224, Pro-235 to Gln-246, Lys-258 to Gly-268, Trp-283 to Gly-295.	S0396: 1. H0494: 4, L0794: 3, H0670: 2, L0751: 2, H0661: 1, H0602: 1, H0587: 1, H0014: 1, H0688: 1, L0376: 1, L0806: 1, L0657: 1 and L4501: 1.	19q13	109560, 205900, 600652, 600757
HCGMA67	998905	290	2 - 664	2465		H0521: 22, L0601: 8, H0266: 7, S0126: 7, L0748: 6, H0556: 4, S0356: 4, S0358: 4, H0052: 4, L0771: 4, L0655: 4, L0777: 4, H0599: 3, H0581: 3, H0046: 3, H0615: 3, H0038: 3, H0616: 3, S0144: 3, L0766: 3, L0664: 3, L0665: 3, H0547: 3, S3014: 3, L0758: 3, L0759: 3, L0596: 3, H0542: 3, H0423: 3, H0295: 2, T0049: 2, S0360: 2, H0580: 2, S0045: 2, S0132: 2, H0393: 2,		

S0222: 2, H0586: 2,
H0486: 2, H0013: 2,
H0108: 2, H0575: 2,
H0050: 2, H0644: 2,
H0169: 2, H0623: 2,
S0142: 2, S0344: 2,
L0659: 2, L0809: 2,
L0666: 2, H0144: 2,
S0374: 2, H0522: 2,
S3012: 2, S0027: 2,
L0743: 2, L0740: 2,
L0754: 2, L0780: 2,
L0594: 2, S0276: 2,
H0170: 1, T0002: 1,
H0222: 1, S0040: 1,
H0713: 1, H0650: 1,
H0657: 1, S0282: 1,
H0255: 1, H0663: 1,
H0459: 1, H0638: 1,
S0418: 1, S0420: 1,
S0354: 1, S0376: 1,
H0339: 1, S0468: 1,
S0140: 1, H0619: 1,
L0717: 1, H0415: 1,
H0438: 1, H0497: 1,
H0250: 1, H0069: 1,
S0346: 1, H0421: 1,
H0194: 1, L0040: 1,
H0178: 1, H0620: 1,
H0014: 1, H0051: 1,

S0051: 1, H0083: 1,
H0354: 1, H0271: 1,
H0622: 1, T0006: 1,
H0424: 1, H0031: 1,
L0142: 1, H0673: 1,
H0124: 1, S0366: 1,
H0316: 1, H0135: 1,
H0591: 1, H0087: 1,
H0551: 1, T0067: 1,
H0264: 1, H0487: 1,
H0268: 1, H0413: 1,
H0056: 1, H0100: 1,
L0564: 1, H0494: 1,
H0366: 1, H0641: 1,
S0422: 1, S0002: 1,
H0529: 1, L0770: 1,
L0637: 1, L0772: 1,
L0646: 1, L0764: 1,
L0662: 1, L0363: 1,
L0774: 1, L0806: 1,
L0652: 1, L0493: 1,
L0382: 1, L0788: 1,
L0663: 1, H0691: 1,
H0689: 1, H0435: 1,
H0659: 1, H0658: 1,
S0330: 1, S0378: 1,
S0152: 1, S0406: 1,
H0555: 1, S0028: 1,
L0779: 1, L0755: 1,
L0731: 1, L0757: 1,

Clone					Amino acid regions	Expression list A	Expression list B	Chromosome	Gene IDs
HSKHK19	998968	291	2 - 673	2466	Ala-1 to Arg-26, Thr-32 to Gln-37.	L0605: 1, L0581: 1, L0595: 1, L0603: 1, H0665: 1, S0192: 1, H0543: 1 and H0422: 1.	L0769: 7, L0751: 6, L0666: 4, L0749: 3, H0030: 2, S0002: 2, L0805: 2, L0653: 2, H0657: 1, H0675: 1, S0007: 1, L0717: 1, H0635: 1, L0021: 1, H0068: 1, H0494: 1, L0638: 1, L0639: 1, L0772: 1, L0764: 1, L0773: 1, L0648: 1, L0803: 1, L0784: 1, L0806: 1, L0657: 1, H0658: 1, S3014: 1, L0747: 1, L0750: 1, L0780: 1, L0759: 1, L0588: 1, L0601: 1 and H0542: 1.	7q35-q36	118425, 118425, 118425, 142335, 152427, 163729, 176450, 180105, 190605, 276000, 276000, 600510, 600725
HAGGR59	999124	292	30 - 596	2467	Asp-20 to Ile-37, Arg-63 to Met-71, Gly-80 to Gly-95, Lys-98 to Thr-162.		H0556: 1, H0650: 1, S0001: 1, S0376: 1, S0346: 1, H0328: 1, L0800: 1, L0649: 1, H0689: 1, H0660: 1 and H0445: 1.		
HOPKS83	999148	293	419 - 1894	2468	Pro-72 to Tyr-80, Pro-98 to Ser-108,		S0278: 22, L0439: 20, L0665: 16, L0438: 15,		

Thr-132 to Gly-146, Pro-170 to Ala-177, Ser-265 to Pro-280, Pro-303 to Asp-309, Asp-349 to Ala-354, Arg-387 to Ser-393, Asn-434 to Tyr-439, Gln-452 to Gly-457, Asp-469 to Val-485.	L0748: 15, L0747: 15, H0521: 11, L0743: 10, L0759: 10, S0144: 9, L0666: 9, L0659: 8, L0741: 8, S0049: 7, S0002: 7, H0547: 7, S0126: 7, S0222: 6, H0052: 6, H0457: 6, S0036: 6, H0539: 6, L0731: 6, L0757: 6, H0575: 5, H0012: 5, H0100: 5, L0649: 5, L0742: 5, L0751: 5, S0046: 4, H0333: 4, H0581: 4, H0188: 4, H0424: 4, L0770: 4, L0764: 4, L0662: 4, H0555: 4, L0758: 4, L0601: 4, H0295: 3, H0549: 3, S0290: 3, H0618: 3, H0086: 3, H0620: 3, H0024: 3, H0551: 3, L0526: 3, L0663: 3, H0670: 3, H0672: 3, L0755: 3, H0255: 2, S0418: 2, H0580: 2, H0393: 2, H0351: 2, H0550: 2, H0253: 2, H0545: 2, H0123: 2, H0290: 2,	

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L0664: 1, S0006: 1,
L0565: 1, H0689: 1,
H0684: 1, H0658: 1,
H0660: 1, H0522: 1,

HE8CY70	999157	294	691 - 1368	2469	Lys-117 to Pro-123, Asp-132 to Lys-137, Ala-153 to Met-158, Ser-166 to Asp-172, Lys-184 to Tyr-190, Glu-199 to Lys-205.	S0390: 1, S3014: 1, L0754: 1, L0752: 1, H0445: 1, H0668: 1, H0653: 1, H0665: 1, S0276: 1, H0542: 1, S0458: 1 and H0352: 1. H0441: 3, H0672: 2, H0555: 2, H0208: 1, S6016: 1, S0222: 1, H0586: 1, H0013: 1, S0049: 1, H0052: 1, H0545: 1, H0046: 1, S0051: 1, T0023: 1, H0617: 1, H0264: 1, H0647: 1, L0438: 1, L0751: 1, L0756: 1 and H0506: 1.		
HPCTI53	999243	295	1 - 474	2470	Pro-1 to Pro-6, Thr-134 to Gln-140, Tyr-142 to Arg-150.	H0052: 45, H0384: 21, L0748: 20, S0222: 14, S0010: 9, H0441: 6, S0049: 6, L0456: 6, S0346: 5, L0769: 5, S6028: 4, H0428: 4, L0770: 4, L0638: 4, L0438: 4, H0659: 4, L0750: 4, L0753: 4, H0619: 3, S0300: 3, T0010: 3, S0036: 3, H0624: 2, H0717: 2, S6024: 2, H0156: 2,	Xq11	313700, 313700, 313700, 313700, 313700

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L5575: 2, L0659: 2,
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S0360: 1, S0007: 1,
S6026: 1, H0261: 1,
H0431: 1, H0455: 1,
H0438: 1, H0013: 1,
S0280: 1, H0575: 1,
H0434: 1, H0194: 1,
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H0015: 1, H0107: 1,
H0375: 1, H0615: 1,
H0424: 1, H0090: 1,
H0412: 1, H0059: 1,
T0069: 1, H0100: 1,
T0041: 1, T0042: 1,
L0475: 1, L0637: 1,

HOPKN50	999313	296	65 - 1582	2471	Glu-47 to Phe-69, Lys-76 to Lys-82, Gly-87 to Ser-98, Glu-107 to Asp-117, Leu-171 to Val-180.	L0768: 1, L0803: 1, L0806: 1, L0776: 1, L0636: 1, L0783: 1, L0789: 1, L0663: 1, H0520: 1, H0660: 1, H0666: 1, S0378: 1, L0741: 1, L0756: 1, L0777: 1, L0759: 1, L0599: 1, L0366: 1, S0384: 1 and S0446: 1. H0341: 2, H0013: 2, L0471: 2, H0266: 2, H0144: 2, L0591: 2, S0011: 2, H0624: 1, H0657: 1, H0151: 1, H0083: 1, H0328: 1, H0316: 1, H0591: 1, H0616: 1, H0412: 1, H0561: 1, S0210: 1, H0684: 1, S0152: 1, L0748: 1, L0749: 1, S0026: 1, H0542: 1 and H0543: 1.
HAPAI17	999778	297	2 - 115	2472	Val-13 to Gln-26.	H0042: 1, L0769: 1 and H0659: 1.
HHAUV59	999808	298	14 - 715	2473	Glu-1 to Gly-12, Lys-32 to Arg-37, Asn-45 to Ser-58, Asp-82 to Gln-97, Gly-136 to Gln-142,	L0761: 3, H0740: 2, L0803: 2, L0718: 2, H0624: 1, S0418: 1, H0208: 1, H0013: 1, H0427: 1, H0544: 1,

HTXLL31	1000315	299	1 - 747	2474	Pro-176 to Pro-199, Val-219 to Pro-226.	H0622: 1, L0769: 1, L0789: 1, H0547: 1, H0519: 1, L0750: 1 and S0434: 1.
					Ile-5 to Lys-10, Glu-47 to Leu-57, Glu-144 to Pro-151, Lys-212 to Asn-217, Pro-219 to Leu-228.	L0803: 6, L0731: 6, L0596: 6, L0665: 5, H0591: 3, L0794: 3, L0804: 3, L0748: 3, L0777: 3, L0717: 2, H0586: 2, L0471: 2, H0622: 2, H0641: 2, L0771: 2, L0662: 2, L0766: 2, L0649: 2, L0664: 2, H0682: 2, H0670: 2, H0539: 2, H0518: 2, L0758: 2, L0759: 2, H0445: 2, S0242: 2, H0422: 2, H0171: 1, H0556: 1, H0657: 1, H0656: 1, H0341: 1, S0282: 1, S0354: 1, S0360: 1, H0574: 1, H0427: 1, H0575: 1, H0057: 1, H0014: 1, H0551: 1, H0646: 1, H0529: 1, L0763: 1, L0761: 1, L0764: 1, L5574: 1, L0775: 1, L0805: 1, L0776: 1, L0657: 1,

HDPUH64	1000339	300	2 - 499	2475		L0659: 1, L0789: 1, L0666: 1, H0144: 1, H0435: 1, H0658: 1, S0328: 1, S0330: 1, H0522: 1, S0037: 1, L0747: 1, L0755: 1, H0707: 1 and H0506: 1. H0615: 5, L0766: 4, H0272: 1, H0560: 1, H0521: 1 and H0677: 1.
HTHS93	1000424	301	725 - 1024	2476		S0360: 2, H0266: 2, S0330: 2, L0748: 2, H0556: 1, S0442: 1, L0471: 1, H0024: 1, H0634: 1, H0494: 1, H0560: 1, L0800: 1, L0803: 1, H0435: 1, H0651: 1, H0521: 1, H0522: 1, S0406: 1, L0747: 1 and S0452: 1.
HMVCG79	1000582	302	3 - 854	2477	Thr-40 to Arg-46, Leu-59 to Ser-68, Leu-236 to Thr-241, Asp-278 to His-284.	AR089: 6, AR060: 5, AR033: 4, AR104: 4, AR096: 4, AR039: 3, AR052: 3, AR053: 3, AR061: 2, AR055: 1 S0002: 4, S0206: 4, L0748: 2, L0740: 2, L0777: 2, S0212: 1, H0661: 1, S0278: 1, H0370: 1, H0123: 1,

				Amino acids	Codes
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HODHK20	1000669	52 - 648	2478	Gly-2 to Ile-8, Glu-13 to Ser-25, Glu-41 to Gly-52.	H0615: 2, S0376: 1, L0766: 1 and L0754: 1.
HCHMO53	1000875	2 - 661	2479	Pro-2 to Gly-25, Gly-40 to Lys-62, Arg-73 to Ala-80, Phe-179 to Arg-184, Pro-190 to His-195, Glu-211 to Ala-219.	AR060: 16, AR052: 8, AR053: 7, AR033: 6, AR104: 6, AR089: 6, AR039: 5, AR061: 5, AR096: 4, AR055: 2, L0776: 8, L0731: 8, S0438: 6, L0752: 6, H0677: 6, S0410: 5, S0440: 5, L0764: 5, L0749: 5, T0049: 4, S0132: 4, L0766: 4, H0648: 4, L0759: 4, L0519: 3, H0684: 3, L0748: 3, L0747: 3, L0757: 3, S0358: 2, S0444: 2, T0006: 2, L0775: 2, L0806: 2, S0152: 2, L0751: 2, L0750: 2, L0758: 2, S0436: 2, H0423: 2, H0624: 1, H0556: 1, H0157: 1, H0295: 1,

| HFKKG84 | 1001066 | 305 | 1 - 666 | 2480 | Gly-33 to Trp-52, Tyr-104 to Ser-110, | H0294: 1, S0114: 1, H0657: 1, H0656: 1, H0484: 1, S0356: 1, S0376: 1, S0360: 1, S0408: 1, S0007: 1, S0045: 1, H0586: 1, H0331: 1, T0109: 1, T0048: 1, L0040: 1, H0046: 1, S0051: 1, H0083: 1, H0606: 1, H0169: 1, H0316: 1, H0268: 1, H0412: 1, T0042: 1, S0464: 1, H0633: 1, L0763: 1, L0770: 1, L0769: 1, L0638: 1, L0771: 1, L0648: 1, L5564: 1, L0381: 1, L0774: 1, L0378: 1, L0655: 1, L0659: 1, L0809: 1, L0788: 1, L0532: 1, H0682: 1, H0659: 1, S0328: 1, S0380: 1, S0350: 1, H0696: 1, H0436: 1, L0753: 1, S0434: 1, L0592: 1, L0608: 1, H0668: 1 and S0026: 1. AR096: 32, AR104: 27, AR089: 24, AR060: |

Gene No	cDNA Clone ID	cDNA SEQ ID NO	Clone Sequence region	AA SEQ ID NO	Amino acid residues	Clones
HOFMT20	1001333	306	127 - 267	2481	Ser-5 to Glu-12. Ile-150 to Ala-157, Ser-159 to Ala-171, Gly-178 to Gly-186, Ala-188 to Ser-204.	H0415: 2 22, AR061: 15, AR055: 13 L0766: 10, L0779: 5, L0770: 4, L0803: 4, L0769: 3, L0761: 3, L0747: 3, H0170: 2, H0686: 2, H0617: 2, L0800: 2, L0794: 2, L0806: 2, L0776: 2, L0754: 2, H0685: 1, H0295: 1, H0656: 1, H0402: 1, S0418: 1, H0486: 1, L0471: 1, H0620: 1, H0083: 1, H0688: 1, H0135: 1, H0625: 1, S0422: 1, L0772: 1, L0646: 1, L0643: 1, L0644: 1, L0764: 1, L0768: 1, L0807: 1, L0783: 1, H0522: 1, L0750: 1, L0777: 1, L0755: 1, L0731: 1, S0026: 1 and S0424: 1.
HPAMB04	1001695	307	40 - 621	2482	Lys-106 to Leu-111.	H0641: 38, S0360: 10, L0731: 8, H0542: 7, L0422: 7, H0545: 6, H0521: 6, L0750: 6, H0423: 6, H0617: 5,

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H0494: 4, L0382: 4,
H0682: 4, H0435: 4,
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H0659: 2, H0666: 2,
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L0754: 2, L0757: 2,
L0596: 2, L0587: 2,
L0591: 2, L0362: 2,
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H0294: 1, H0657: 1,
H0663: 1, H0664: 1,
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S0376: 1, H0489: 1,
H0580: 1, S0045: 1,
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H0251: 1, H0530: 1,

HODEK48	1001901	308	368 - 682	2483	Thr-2 to Gln-8, Glu-20 to Gly-26.	H0012: 1, H0620: 1, H0271: 1, H0687: 1, H0181: 1, H0212: 1, S0364: 1, H0388: 1, H0090: 1, H0413: 1, H0560: 1, S0466: 1, S0440: 1, H0646: 1, S0144: 1, L0637: 1, L0764: 1, L0662: 1, L0364: 1, L0794: 1, L0774: 1, L0806: 1, L0658: 1, L0656: 1, L0659: 1, L0383: 1, L0789: 1, L0666: 1, L0664: 1, S0380: 1, H0518: 1, H0134: 1, S0404: 1, H0187: 1, L0749: 1, H0445: 1, S0434: 1 and H0543: 1. H0615: 2, L0794: 2 and H0266: 1.		
HVVCB28	1001954	309	328 - 807	2484	Ile-8 to Gly-13, Pro-62 to Phe-68, Gly-95 to Gly-101, Ser-108 to Val-114, Glu-129 to Leu-146.	H0617: 43, H0341: 38, S0046: 37, L0747: 34, S0126: 30, L0507: 29, L0500: 29, S0007: 28, H0087: 28, L0775: 28, L0509: 28, H0594: 27, H0333: 24, L0772: 24, S0132: 23, H0620: 23, L0502: 23, L0768: 21,	19q13.2	107741, 113900, 122720, 122720,— 126340, 126391, 160900, 164731, 173850,

	207750, 248600, 258501
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T0040: 4, H0013: 4,
H0099: 4, H0266: 4,
H0615: 4, H0124: 4,
H0412: 4, T0041: 4,
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H0689: 4, H0660: 4,

S0044: 4, S0032: 4,
L0754: 4, L0757: 4,
H0265: 3, L0760: 3,
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H0309: 3, H0178: 3,
H0687: 3, H0039: 3,
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S0390: 3, L0755: 3,
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L0604: 3, L0362: 3,
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H0102: 1, S0038: 1,

130500, 133200, 138140, 171760, 171760, 178300, 255800	H0521: 14, L0754: 14, L0591: 14, S0007: 13, S0046: 13, S0126: 13, H0040: 12, S0144: 12, L0752: 12, L0588: 12, S0344: 11, S0424: 11, S0036: 10, H0556: 9, S0278: 9, S0222: 9, H0370: 9, H0014: 9, H0617: 9, L0775: 9, L0742: 9, L0745: 9, L0731: 9, S0040: 8, H0431: 8, H0266: 8, L0769: 8, L0663: 8, S0328: 8, S0152: 8, S0420: 7, H0575: 7, H0083: 7, H0090: 7, H0412: 7, S0142: 7, L0768: 7, L0666: 7, L0665: 7, H0144: 7, H0519: 7, L0439: 7, H0657: 6, H0052: 6, L0471: 6, T0006: 6, H0553: 6, H0628: 6, H0135: 6, L0806: 6, S0374: 6, H0658: 6, L0744: 6, L0593: 6, H0624: 5, S0358: 5, S0045: 5, H0331: 5, H0318: 5, H0581: 5,

H0032: 5, T0067: 5,
H0623: 5, L0662: 5,
L0657: 5, L0659: 5,
L0664: 5, S0330: 5,
H0522: 5, S0037: 5,
L0755: 5, L0596: 5,
L0595: 5, S0192: 5,
H0650: 4, S0212: 4,
H0484: 4, H0125: 4,
S0376: 4, S0132: 4,
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S0346: 4, H0031: 4,
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H0520: 4, H0660: 4,
H0672: 4, S3012: 4,
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H0542: 4, H0506: 4,
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H0255: 3, H0638: 3,
S0418: 3, S0356: 3,
H0486: 3, T0082: 3,
T0048: 3, H0596: 3,
H0327: 3, H0046: 3,

H0178: 3, H0620: 3,
L0163: 3, H0594: 3,
H0328: 3, S0364: 3,
H0038: 3, H0264: 3,
H0056: 3, H0100: 3,
T0041: 3, T0042: 3,
H0130: 3, S0002: 3,
L0374: 3, L0764: 3,
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L0783: 3, H0682: 3,
H0435: 3, H0134: 3,
H0555: 3, S0390: 3,
S3014: 3, L0592: 3,
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H0170: 2, T0002: 2,
S0134: 2, H0583: 2,
S0116: 2, H0483: 2,
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L0622: 2, T0040: 2,
T0109: 2, H0069: 2,
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H0529: 2, L0762: 2,
L0646: 2, L0765: 2,
L0364: 2, L0774: 2,
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L0526: 2, L0529: 2,
L0565: 2, L0438: 2,
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L0605: 2, L0608: 2,
L0362: 2, H0665: 2,
S0196: 2, H0422: 2,
S0452: 2, S0384: 2,
H0352: 2, H0265: 1,
H0685: 1, S0402: 1,
H0295: 1, H0294: 1,
H0669: 1, H0663: 1,
H0664: 1, H0228: 1,
L0005: 1, S0354: 1,
H0208: 1, L0717: 1,
H0351: 1, H0411: 1,

S6022: 1, H0455: 1,
H0409: 1, H0601: 1,
H0586: 1, H0497: 1,
H0643: 1, L0586: 1,
T0060: 1, T0114: 1,
H0250: 1, S0280: 1,
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H0622: 1, H0644: 1,
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H0169: 1, H0674: 1,
H0124: 1, H0591: 1,
H0022: 1, H0561: 1,
H0641: 1, H0142: 1,
S0422: 1, H0026: 1,
L0520: 1, L0640: 1,
L0763: 1, L0638: 1,

| HDACA35 | 1002096 | 311 | 68 - 472 | 2486 | Asp-1 to Lys-12, Pro-18 to Arg-26, Asp-51 to Val-74, Ala-80 to Leu-102. | L0637: 1, L0761: 1, L0373: 1, L0648: 1, L0521: 1, L0389: 1, L0376: 1, L0784: 1, L0523: 1, L0378: 1, L0527: 1, L0517: 1, L0383: 1, L0545: 1, L0541: 1, L0368: 1, L0352: 1, H0547: 1, H0689: 1, H0666: 1, H0539: 1, S0332: 1, S0044: 1, S0176: 1, S0146: 1, H0214: 1, H0478: 1, L0741: 1, L0749: 1, L0756: 1, L0759: 1, H0444: 1, H0343: 1, S0434: 1, L0361: 1, L0601: 1, L0366: 1, S0106: 1, H0667: 1, S0194: 1, H0423: 1, L0697: 1 and H0293: 1. | AR039: 12, AR033: 6, AR053: 6, AR096: 6, AR055: 6, AR089: 5, AR104: 5, AR052: 5, AR060: 4, AR061: 3 H0497: 1, H0617: 1, L0769: 1, L0766: 1, L0775: 1, H0670: 1 and |

HOVDG59	1002328	312	1 - 639	2487	Pro-1 to His-7, Glu-61 to Lys-67, Arg-94 to Phe-104, Pro-164 to Trp-169.	H0672: 1. AR052: 20, AR039: 14, AR053: 13, AR096: 11, AR033: 11, AR055: 9, AR089: 9, AR104: 8, AR061: 7, AR060: 6 L0438: 6, L0439: 6, L0776: 5, H0428: 4, L0805: 4, H0687: 3, L0770: 3, H0651: 3, L0789: 2, L0756: 2, L0758: 2, L0361: 2, S0212: 1, S0001: 1, H0351: 1, H0587: 1, H0581: 1, H0052: 1, H0327: 1, H0178: 1, L0769: 1, L0767: 1, L0794: 1, L0807: 1, S0152: 1, H0522: 1, L0731: 1, L0759: 1 and L0608: 1.		
HTJAD78	1002459	313	1236 - 196	2488	Thr-2 to Gln-13, Ser-23 to Ser-28, Ser-36 to Ser-42.	L0748: 29, L0581: 21, H0510: 8, H0255: 5, H0574: 5, H0506: 4, H0331: 3, H0581: 3, H0264: 3, L0803: 3, L0774: 3, L0663: 3, H0555: 3, S0116: 2, H0632: 2, H0087: 2,	14q32.33	144120, 147020, 147110

HCDCF69	1002468	314	170 - 508	2489	Cys-20 to Gly-29.	S0212: 7, L0809: 7, L0747: 7, S0045: 6, H0046: 6, H0551: 6, L0775: 6, L0751: 6, L0749: 6, L0757: 6, H0545: 5, S0126: 5, S3012: 5, S0040: 4, H0618: 4, H0318: 4, H0251: 4, H0024: 4, H0083: 4, S0250: 4, H0124: 4, H0100: 4, L0794: 4, L0438: 4, S0027: 4, L0731: 4, H0295: 3, S0222: 3, H0253: 3, H0644: 3, L0776: 3, L0659: 3, L0665: 3, H0539: 3, L0439: 3, L0740: 3,	H0509: 2, L0648: 2, L0378: 2, H0254: 1, H0486: 1, H0575: 1, H0057: 1, H0015: 1, H0553: 1, H0488: 1, H0487: 1, S0438: 1, L0775: 1, L0526: 1, L0664: 1, H0658: 1, L0743: 1, L0751: 1, L0779: 1, L0759: 1, H0444: 1, S0308: 1, H0595: 1 and L0605: 1.

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H0619: 2, H0427: 2,
H0599: 2, H0575: 2,
H0052: 2, H0544: 2,
H0546: 2, H0123: 2,
H0050: 2, H0012: 2,
H0620: 2, H0051: 2,
H0188: 2, H0252: 2,
H0622: 2, S0440: 2,
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L0772: 2, L0372: 2,
L0646: 2, L0374: 2,
L0803: 2, L0774: 2,
L0375: 2, L5623: 2,
L0666: 2, L0663: 2,
L0664: 2, H0660: 2,
H0672: 2, H0521: 2,
H0631: 2, S0037: 2,
S3014: 2, L0743: 2,
L0744: 2, L0779: 2,
L0758: 2, H0265: 1,
H0740: 1, T0049: 1,
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S0360: 1, S0410: 1,
H0734: 1, H0339: 1,
S0132: 1, H0455: 1,
H0574: 1, H0486: 1,
H0013: 1, L0021: 1,

H0706: 1, S0346: 1,
T0048: 1, H0085: 1,
H0263: 1, H0150: 1,
H0009: 1, L0471: 1,
H0015: 1, H0266: 1,
H0286: 1, S0214: 1,
H0615: 1, H0039: 1,
H0181: 1, H0617: 1,
L0055: 1, L0455: 1,
H0708: 1, H0135: 1,
H0163: 1, H0040: 1,
H0269: 1, H0623: 1,
H0059: 1, S0112: 1,
L0351: 1, H0280: 1,
H0494: 1, L0475: 1,
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S0142: 1, S0210: 1,
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L5566: 1, L0764: 1,
L0771: 1, L0648: 1,
L0662: 1, L0767: 1,
L0768: 1, L0364: 1,
L0386: 1, L0804: 1,
L0784: 1, L0509: 1,
L0653: 1, L0654: 1,
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L0541: 1, L0368: 1,
H0144: 1, T0068: 1,
H0520: 1, H0547: 1,

						Amino acid changes	Clones	Location	Accession
HPTTW90	1002479	315	3 - 356	2490	Glu-80 to Arg-86.	H0519: 1, H0689: 1, H0682: 1, H0658: 1, H0710: 1, H0134: 1, H0187: 1, H0627: 1, S0118: 1, S0028: 1, L0754: 1, L0759: 1, S0260: 1, H0445: 1, S0436: 1, S0011: 1, S0194: 1, S0276: 1 and H0008: 1.	4p16.3	L0439: 3, H0688: 2, S0142: 2, L0664: 2, H0521: 2, L0751: 2, S0418: 1, S0222: 1, S0250: 1, H0252: 1, H0213: 1, H0617: 1, H0641: 1, S0344: 1, L0371: 1, L0803: 1, L0653: 1, L0527: 1, L0659: 1, H0520: 1, L0780: 1 and H0423: 1.	134934, 134934, 134934, 134934, 134934, 143100, 180072, 180072, 194190, 252800, 252800, 252800, 600965
HSUBG36	1002492	316	58 - 342	2491	Arg-7 to Val-13, Leu-28 to Arg-33, Ser-69 to Gln-76.	L0749: 9, L0766: 5, H0659: 5, H0657: 4, S0022: 4, S0438: 3, S0422: 3, L0521: 3, L0518: 3, L0783: 3, H0144: 3, L0758: 3, H0685: 2, H0656: 2,	1q32		114208, 114208, 119300, 120620, 120620, 120920, 134370,

134370, 134370, 134580, 145260, 150310, 150310, 179820, 191045, 600105, 600759, 601494, 601975	H0341: 2, S0046: 2, H0393: 2, H0266: 2, L0520: 2, L0763: 2, L0770: 2, L0775: 2, L0657: 2, L0665: 2, H0547: 2, H0521: 2, L0747: 2, L0750: 2, S0446: 2, H0170: 1, S0040: 1, H0484: 1, H0662: 1, H0402: 1, S0356: 1, S0410: 1, H0580: 1, H0351: 1, H0333: 1, L0623: 1, H0486: 1, H0013: 1, H0599: 1, S0182: 1, H0581: 1, T0110: 1, H0009: 1, L0471: 1, T0023: 1, L0055: 1, H0169: 1, H0087: 1, T0067: 1, H0412: 1, H0413: 1, H0279: 1, H0494: 1, H0625: 1, H0396: 1, H0561: 1, S0144: 1, L0762: 1, L0502: 1, L0648: 1, L0653: 1, L0655: 1, L0663: 1, H0701: 1, H0519: 1, H0682: 1, H0648: 1, H0710: 1, S0152: 1, S0136: 1,

| HODFU72 | 1002527 | 317 | 3 - 1199 | 2492 | Leu-14 to Asn-32, Ala-35 to Gly-40, Lys-51 to Ser-56, Ala-68 to Leu-78, Ile-91 to Lys-99, Gly-101 to Ala-124, His-141 to Lys-152, Ser-174 to Asp-181, Pro-203 to Leu-215, Lys-294 to Gly-301. | L0777: 9, L0754: 8, H0457: 6, H0251: 5, H0615: 5, L0757: 5, S0360: 4, H0031: 4, L0731: 4, H0445: 4, H0438: 3, L0369: 3, L0662: 3, L0766: 3, L0659: 3, S0126: 3, L0747: 3, H0013: 2, H0644: 2, H0628: 2, L0598: 2, L0770: 2, L0769: 2, L0775: 2, L0805: 2, L0666: 2, S0374: 2, H0682: 2, L0779: 2, L0758: 2, L0759: 2, L0599: 2, L0595: 2, H0543: 2, H0423: 2, H0170: 1, H0556: 1, S0040: 1, H0381: 1, L0481: 1, S0358: 1, S0376: 1, T0008: 1, S0046: 1, H0393: 1, L0717: 1, S0222: 1, H0587: 1, H0333: 1, H0642: 1, H0555: 1, S0028: 1, L0755: 1, L0757: 1, S0026: 1, H0136: 1, S0192: 1, H0542: 1, H0543: 1 and H0423: 1. |

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H0486: 1, T0109: 1,
H0098: 1, H0036: 1,
H0390: 1, H0052: 1,
H0263: 1, N0006: 1,
H0050: 1, T0010: 1,
H0083: 1, H0266: 1,
H0328: 1, H0169: 1,
H0674: 1, H0598: 1,
H0561: 1, S0150: 1,
S0344: 1, H0538: 1,
S0422: 1, UNKWN: 1,
H0529: 1, L0371: 1,
L0646: 1, L0764: 1,
L0649: 1, L0389: 1,
L0804: 1, L0655: 1,
L0606: 1, L0783: 1,
L0809: 1, L0647: 1,
L0663: 1, L0664: 1,
L0665: 1, H0144: 1,
L0352: 1, H0547: 1,
H0519: 1, H0684: 1,
H0435: 1, H0670: 1,
H0672: 1, H0518: 1,
S0152: 1, H0522: 1,
H0555: 1, S0390: 1,
S0037: 1, L0743: 1,
L0740: 1, L0751: 1,
L0750: 1, L0756: 1,
L0755: 1, L0596: 1,

Gene	ID	No.	Range	SEQ	Amino acid	Clones
HCNSF57	1002545	318	20 - 826	2493	Ser-80 to Gln-98.	L0605: 1, L0590: 1, L0591: 1, L0593: 1, S0026: 1, S0242: 1, S0276: 1 and H0422: 1.
HODJU13	1002546	319	2 - 121	2494	Thr-2 to Ser-9, Pro-23 to Glu-34.	H0615: 2
HODIL25	1002551	320	195 - 1556	2495	Ser-30 to Lys-46, Leu-55 to Gly-67, Ile-80 to Asp-85, Glu-146 to Arg-155, Asn-182 to Arg-192.	H0040: 6, H0013: 3, S0136: 3, L0777: 3, H0542: 3, H0171: 2, H0581: 2, H0328: 2, H0615: 2, L0662: 2, H0144: 2, L0731: 2, H0624: 1, H0170: 1, H0556: 1, S0282: 1, H0661: 1, H0176: 1, H0402: 1, S0354: 1, S0360: 1, H0393: 1, S6014: 1, H0574: 1, H0427: 1, H0575: 1, L0157: 1, S0003: 1, H0553: 1, H0090: 1, H0591: 1, T0067: 1, H0264: 1, H0412: 1, T0041: 1, H0494: 1, H0646: 1, S0002: 1, L0646: 1, L0642: 1, L0645: 1, L0651: 1, L0655: 1, L0659: 1, L0791: 1, L0666: 1,

						H0520: 1, H0547: 1, H0519: 1, H0689: 1, H0659: 1, H0521: 1, H0696: 1, L0747: 1, L0758: 1, S0192: 1, S0242: 1 and H0422: 1.
HUVHS56	1002563	321	162 - 791	2496	Gln-34 to Pro-41, Lys-60 to Thr-71, Val-78 to Gln-86, His-139 to Tyr-149, Arg-183 to His-191.	L0803: 4, L0793: 4, L0749: 4, L0438: 3, L0439: 3, S0420: 2, L0485: 2, H0038: 2, H0561: 2, L0804: 2, L0747: 2, L0779: 2, L0591: 2, H0265: 1, H0556: 1, S0418: 1, H0728: 1, H0208: 1, H0619: 1, S0278: 1, H0486: 1, H0244: 1, H0052: 1, S0366: 1, H0598: 1, H0623: 1, L0640: 1, L0364: 1, L0774: 1, L0776: 1, L0807: 1, L0659: 1, L0809: 1, L0791: 1, S0374: 1, H0520: 1, H0547: 1, H0521: 1, H0522: 1, S3014: 1, L0752: 1, L0759: 1, H0445: 1, S0436: 1 and L0599: 1.
HPMJQ18	1002565	322	392 - 823	2497	Gln-29 to Gln-42.	H0644: 4, S0036: 1 and L0599: 1.

HLHCI46	1002591	323	114 - 923	2498	Glu-1 to Asp-13, His-55 to Leu-66, Gln-69 to Cys-79, Thr-81 to Asp-90, Gln-132 to Arg-141, Asp-158 to Trp-169, Lys-171 to Asn-180, His-208 to Arg-221, Pro-229 to Glu-237.	H0521: 1. L0591: 15, L0751: 13, L0665: 11, L0754: 9, H0689: 6, L0750: 6, H0362: 3, H0688: 3, H0617: 3, L0774: 3, L0657: 3, H0658: 3, H0575: 2, H0615: 2, H0059: 2, H0690: 2, H0660: 2, S0328: 2, S0330: 2, L0743: 2, L0756: 2, L0755: 2, H0671: 1, H0282: 1, H0024: 1, T0006: 1, H0644: 1, H0647: 1, L0769: 1, L0662: 1, L0803: 1, L0806: 1, L0783: 1, L0809: 1, L0664: 1, H0682: 1, L0748: 1, L0596: 1 and L0599: 1.
HAOSD18	1002607	324	29 - 1408	2499	Arg-12 to Arg-19, His-62 to Leu-73, Ser-103 to Thr-111, Asn-147 to Val-158, Phe-207 to Trp-213, Lys-243 to Lys-276, Ala-281 to Cys-289, Pro-297 to Pro-302, Glu-315 to Asp-324,	

							19q
HACNG47	1002610	325	2 - 361	2500			
HOPJX95	1002729	326	229 - 681	2501	His-336 to Trp-342, Arg-371 to Lys-377, Asp-416 to Thr-432. Pro-1 to Lys-7, Val-105 to Ile-113, Asp-128 to Phe-137, Arg-145 to Arg-151.	H0341: 33, S0126: 19, L0471: 17, H0087: 17, H0659: 17, H0670: 17, H0333: 14, H0024: 14, H0685: 13, S0114: 13, S0358: 13, H0648: 13, S0046: 12, L0742: 12, L0588: 12, S0278: 11, H0594: 11, H0352: 11, S0134: 10, L0748: 10, S0116: 9, H0620: 9, L0754: 9, L0750: 9, H0422: 9, H0255: 8, S0007: 8, S0132: 8, H0318: 8, H0081: 8, H0012: 8, H0083: 8, S3012: 8, S3014: 8, H0543: 8, H0265: 7, H0009: 7, H0039: 7, S0027: 7, S0028: 7, H0295: 6, H0657: 6, L0622: 6, L0540: 6, H0436: 6, H0576: 6, H0624: 5, S0360: 5, H0351: 5, L0623: 5, H0069: 5, H0530: 5,	

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H0059: 5, H0100: 5,
L0521: 5, L0526: 5,
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S0040: 3, H0294: 3,
H0402: 3, S0376: 3,
H0392: 3, H0486: 3,
T0040: 3, S0280: 3,
H0581: 3, H0327: 3,
H0041: 3, H0252: 3,
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L0783: 3, L0809: 3,
H0684: 3, S0037: 3,
L0747: 3, H0343: 3,
H0542: 2, H0170: 2,
T0002: 2, H0159: 2,

S0218: 2, S0212: 2,
H0305: 2, H0459: 2,
H0125: 2, H0637: 2,
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H0370: 2, H0574: 2,
H0492: 2, H0101: 2,
H0013: 2, H0421: 2,
H0231: 2, H0046: 2,
H0457: 2, H0051: 2,
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H0188: 2, H0292: 2,
H0284: 2, H0286: 2,
S0022: 2, S0214: 2,
H0428: 2, H0031: 2,
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S0036: 2, H0038: 2,
T0042: 2, S0016: 2,
H0359: 2, H0625: 2,
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H0646: 2, S0144: 2,
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L0762: 2, L0770: 2,
L0768: 2, L0775: 2,
L0655: 2, L0542: 2,
L0384: 2, L0545: 2,
L0530: 2, L0666: 2,
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L0786: 2, L0755: 2,

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L0361: 2, L0603: 2,
S0011: 2, H0668: 2,
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H0222: 1, S0402: 1,
T0049: 1, H0650: 1,
L0785: 1, S0001: 1,
H0669: 1, H0663: 1,
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H0086: 1, H0050: 1,
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H0578: 1, H0015: 1,
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Gene	ID	No.	Range	SEQ ID	Amino acid features	Clone distribution	Chromosome
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HSCLR05	1002807	327	3 - 242	2502	Lys-1 to Asn-10, Phe-40 to Gly-55, Asn-61 to Arg-66.	L0748: 3, H0486: 1, H0428: 1, H0034: 1, H0690: 1, H0435: 1, H0658: 1, H0653: 1 and L0465: 1.	
HVVAO74	1002811	328	37 - 831	2503	Pro-107 to Gly-118, Gly-128 to Ser-140, Asp-148 to Glu-166, Ala-173 to Ala-186, Arg-196 to Ala-210, Ile-219 to Trp-228, Asn-238 to Met-251.	L0777: 17, L0766: 11, S0360: 10, L0748: 10, H0620: 8, H0124: 8, L0770: 8, H0295: 7, S0408: 7, S0046: 6, L0775: 6, L0659: 6, L0744: 6, L0595: 6, S0278: 5, S0440: 5, L0769: 5, L0655: 5, L0657: 5, L0666: 5, L0731: 5, H0556: 4, H0484: 4, S0358: 4, H0580: 4, S0222: 4, H0559: 4, H0052: 4, H0545: 4, H0673: 4,	12q23-q24 113100, 124200, 147440, 158590, 160781, 163950, 163950, 235800, 251170, 276710, 600175, 601517

H0100: 4, L0637: 4,
L0665: 4, H0144: 4,
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L0599: 4, H0624: 3,
H0341: 3, S0442: 3,
H0550: 3, H0599: 3,
H0012: 3, H0644: 3,
H0087: 3, H0551: 3,
S0144: 3, L0763: 3,
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L0794: 3, L0774: 3,
L0776: 3, L0664: 3,
H0648: 3, H0672: 3,
H0521: 3, S0406: 3,
S3012: 3, S0028: 3,
L0740: 3, L0751: 3,
H0445: 3, H0665: 3,
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H0661: 2, H0664: 2,
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S0010: 2, H0544: 2,
H0178: 2, H0024: 2,
H0083: 2, H0510: 2,
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H0616: 2, H0063: 2,
H0433: 2, H0413: 2,
H0494: 2, H0560: 2,

| L0764: 2, L0803: 2, |
| L0651: 2, L0378: 2, |
| L0806: 2, L0809: 2, |
| L0663: 2, H0547: 2, |
| H0658: 2, S0330: 2, |
| H0696: 2, S3014: 2, |
| S0027: 2, S0206: 2, |
| L0742: 2, L0749: 2, |
| L0750: 2, L0752: 2, |
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| S0260: 2, H0444: 2, |
| L0596: 2, L0590: 2, |
| L0592: 2, L0604: 2, |
| L0362: 2, L0361: 2, |
| H0667: 2, H0170: 1, |
| H0171: 1, H0265: 1, |
| T0002: 1, S0040: 1, |
| S0134: 1, L0785: 1, |
| S0116: 1, S0212: 1, |
| S0001: 1, H0255: 1, |
| H0663: 1, S0418: 1, |
| S0356: 1, S0376: 1, |
| S0444: 1, L0717: 1, |
| H0411: 1, H0369: 1, |
| H0431: 1, H0370: 1, |
| H0455: 1, H0587: 1, |
| T0039: 1, T0114: 1, |
| H0013: 1, H0250: 1, |
| S0280: 1, H0156: 1, |
| L0021: 1, H0004: 1, |

H0318: 1, S0474: 1,
H0196: 1, H0251: 1,
H0085: 1, H0204: 1,
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H0086: 1, H0081: 1,
H0050: 1, H0373: 1,
S0051: 1, T0010: 1,
H0375: 1, S6028: 1,
H0271: 1, S0334: 1,
H0284: 1, S0250: 1,
S0003: 1, S0214: 1,
H0328: 1, H0213: 1,
H0628: 1, H0169: 1,
H0674: 1, S0366: 1,
H0316: 1, H0598: 1,
H0163: 1, H0591: 1,
H0038: 1, H0056: 1,
H0561: 1, S0464: 1,
S0466: 1, S0150: 1,
S0142: 1, S0426: 1,
H0529: 1, L0772: 1,
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L0658: 1, L0635: 1,
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HVVBI81	1003126	329	199 - 843	2504	Asp-45 to Pro-56, Thr-86 to Ser-91, Pro-127 to Arg-133, Asp-201 to Gln-215.	L0529: 1, L0647: 1, S0428: 1, H0698: 1, H0702: 1, L0565: 1, H0520: 1, H0690: 1, H0682: 1, H0684: 1, H0659: 1, H0670: 1, S0328: 1, H0539: 1, S0378: 1, S0380: 1, H0709: 1, S0044: 1, S0404: 1, H0436: 1, H0576: 1, S0037: 1, L0741: 1, L0755: 1, S0434: 1, L0597: 1, L0589: 1, L0608: 1, L0366: 1, S0026: 1, S0194: 1, S0276: 1, H0423: 1 and H0352: 1.	19q13.1-q13.2	
						L0777: 14, L0748: 11, L0747: 7, L0752: 7, H0295: 6, L0769: 6, L0749: 4, L0755: 4, H0341: 3, H0580: 3, H0581: 3, H0529: 3, L0770: 3, L0751: 3, L0750: 3, L0756: 3, L0605: 3, L0601: 3, L0615: 2, S0116: 2, H0402: 2, S0132: 2, H0575: 2, H0253: 2, H0309: 2, H0081: 2,		107741, 113900, 122720, 122720, 126340, 126391, 160900, 164731, 172400, 172400, 173850, 180901, 180901,

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221770,
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258501,
600918,
602716

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| HVVBK18 | 1003155 | 330 | 185 - 925 | 2505 | Lys-75 to Lys-80, Leu-138 to Tyr-144, Tyr-153 to Pro-159. | L0376: 1, L0783: 1,
L0532: 1, L0666: 1,
L0665: 1, H0689: 1,
H0659: 1, H0658: 1,
H0670: 1, H0660: 1,
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S0044: 1, H0134: 1,
S0027: 1, L0740: 1,
L0731: 1, H0445: 1,
S0192: 1 and H0542: 1. | L0740: 11, L0751: 11,
L0731: 7, L0758: 7,
H0659: 6, H0672: 6,
L0748: 6, L0759: 6,
H0251: 5, H0441: 4,
L0766: 4, L0806: 4,
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H0412: 3, S0422: 3,
L0774: 3, L0775: 3,
H0648: 3, H0521: 3,
L0754: 3, L0747: 3,
L0752: 3, L0755: 3,
S0026: 3, H0624: 2,
H0341: 2, S0298: 2,
S0358: 2, S0360: 2,
S0046: 2, H0333: 2,
H0318: 2, H0009: 2,
H0024: 2, H0083: 2,
S0214: 2, H0617: 2, | 1p34.2 | 120550,
120570,
120575,
121800,
130500,
133200,
138140,
171760,
171760,
255800 |

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H0059: 2, H0494: 2,
L0764: 2, L0771: 2,
L0662: 2, L0767: 2,
L0768: 2, L0649: 2,
L0375: 2, L0529: 2,
L0665: 2, H0144: 2,
H0519: 2, H0593: 2,
H0631: 2, S0027: 2,
L0749: 2, L0589: 2,
L0605: 2, L0361: 2,
L0603: 2, H0149: 1,
H0265: 1, T0002: 1,
S0114: 1, T0049: 1,
H0657: 1, H0663: 1,
H0638: 1, H0125: 1,
S0356: 1, S0045: 1,
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H0586: 1, H0587: 1,
H0497: 1, H0643: 1,
T0040: 1, H0427: 1,
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H0150: 1, H0123: 1,
H0081: 1, S0316: 1,
T0006: 1, H0644: 1,
S0036: 1, H0090: 1,
T0067: 1, T0041: 1,
L0475: 1, H0561: 1,
S0150: 1, H0647: 1,

HOFMS19	1003222	331	12 - 317	2506			L0520: 1, L0796: 1, L0761: 1, L0521: 1, L0376: 1, L0657: 1, L0635: 1, L0664: 1, H0684: 1, S0328: 1, S3012: 1, S0028: 1, L0743: 1, L0779: 1, S0436: 1, L0592: 1, S0196: 1, H0422: 1.
HSCLM55	1003224	332	1 - 768	2507	Phe-2 to Asp-14, Leu-35 to Ile-42, Leu-63 to Lys-69, Thr-79 to Glu-84, Ile-137 to Gln-149, Thr-195 to Asp-200, Lys-216 to Glu-222, Asn-228 to Asn-233.	21q11.2-q21.1	H0415: 2
HETJU23	1003706	333	860 - 1477	2508			AR055: 9, AR061: 8,

(Additional column values: L0769: 1, L0639: 1, L0646: 1, L0533: 1, L0607: 1, L0659: 1, L0382: 1, S0374: 1, H0670: 1, S0146: 1, S3014: 1, S0032: 1, L0750: 1, L0757: 1, L0596: 1, L0593: 1, H0542: 1 and; 159595)

HNOKB73	1004480	334	3 - 515	2509	AR033: 6, AR060: 6, AR052: 5, AR089: 4, AR053: 3, AR096: 2, AR039: 2, AR104: 1 L0749: 4, L0794: 3, H0658: 3, H0046: 2, L0803: 2, L0666: 2, L0663: 2, L0777: 2, H0556: 1, H0351: 1, H0253: 1, H0014: 1, T0023: 1, H0038: 1, H0477: 1, H0412: 1, L0370: 1, L0763: 1, L0769: 1, L0639: 1, L0800: 1, L0768: 1, L0649: 1, L0804: 1, L0776: 1, L0367: 1, L0438: 1, H0435: 1, H0670: 1, H0666: 1, H0522: 1 and L0759: 1.	S0192: 130, L0659: 16, L0666: 10, S0360: 7, L0771: 6, S0194: 5, L0662: 4, S0196: 4, L0665: 3, H0251: 2, H0252: 2, L0598: 2, L0638: 2, L0637: 2, L0649: 2, L0783: 2, L0684: 2, H0170: 1, H0687: 1, S0250: 1,

						H0428: 1, H0048: 1, H0591: 1, L0774: 1, L0806: 1, L0809: 1, L0790: 1, L0664: 1, H0690: 1, L0751: 1, L0756: 1, L0758: 1, S0436: 1 and S0242: 1.
HODFB06	1004583	335	392 - 550	2510	Phe-11 to Gly-16, Gln-44 to Ile-53.	H0615: 3 and L0740: 1.
HODJA76	1004619	336	198 - 302	2511	Ser-1 to Cys-12, Gly-16 to Val-29.	H0615: 1
HODJY60	1004625	337	111 - 683	2512	Arg-1 to Gly-8, Thr-82 to Thr-95, Ser-104 to Ile-110, Asn-136 to Glu-141.	L0803: 11, L0748: 11, L0777: 10, L0754: 8, L0759: 6, S0126: 5, S0358: 3, L0804: 3, L0439: 3, L0740: 3, L0747: 3, L0731: 3, L0758: 3, L0415: 2, S0360: 2, H0437: 2, H0457: 2, S0003: 2, H0615: 2, L0774: 2, L0775: 2, L0375: 2, L0666: 2, S0328: 2, L0750: 2, L0779: 2, L0752: 2, L0755: 2, L0757: 2, H0341: 1, H0637: 1, H0580: 1, H0592: 1, L0021: 1, T0110: 1, H0620: 1, H0266: 1, S0314: 1,

HODEF10	1004627	338	1 - 231	2513	His-7 to Gly-17, Phe-24 to Trp-40.	H0039: 1, H0031: 1, H0553: 1, L0055: 1, T0067: 1, H0412: 1, H0494: 1, H0561: 1, L0763: 1, L0772: 1, L0800: 1, L0764: 1, L0771: 1, L0766: 1, L0382: 1, L0809: 1, L0790: 1, L0532: 1, L0665: 1, H0144: 1, H0520: 1, H0682: 1, H0658: 1, H0648: 1, H0672: 1, S0044: 1, H0436: 1, L0756: 1, L0608: 1, S0026: 1, H0543: 1 and S0424: 1.			
HODFB03	1004631	339	1 - 711	2514	Gln-24 to Leu-29, His-38 to Asn-50, Gly-117 to Tyr-128, Ser-135 to Pro-147.	H0615: 2	S0354: 1, H0083: 1, H0615: 1 and H0665: 1.	6p12-p11.1	180297, 230450, 263200, 601690
HPMLN08	1004632	340	518 - 1294	2515		L0752: 14, L0754: 11, L0731: 11, L0692: 10, L0758: 8, L0766: 6, L0759: 6, S0358: 5, L0809: 5, S0222: 4, S0003: 4, H0328: 4, L0769: 4, L0771: 4, L0803: 4,			

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HODEH08	1004633	341	1 - 378	2516		L0608: 1, L0362: 1, H0668: 1, S0026: 1, H0653: 1 and H0423: 1. H0032: 5, H0620: 4, H0599: 3, H0024: 3, H0615: 3, H0556: 2, H0141: 2, H0585: 2, S0420: 2, H0014: 2, H0212: 2, L0748: 2, L0740: 2, H0624: 1, H0170: 1, H0149: 1, H0484: 1, H0580: 1, H0393: 1, H0370: 1, H0592: 1, H0318: 1, S0049: 1, H0052: 1, H0530: 1, H0081: 1, H0012: 1, H0023: 1, H0286: 1, H0039: 1, H0135: 1, H0272: 1, H0412: 1, H0059: 1, S0440: 1, H0132: 1, S0002: 1, L0602: 1, L0746: 1, H0445: 1 and H0506: 1.
HEGBF25	1004635	342	57 - 773	2517	Ala-1 to Gly-23, Gly-26 to Leu-32, Leu-53 to Leu-65, Gln-145 to Thr-151.	AR096: 1, AR089: 1, AR104: 0, AR055: 0, AR060: 0, AR061: 0, L0761: 3, L0439: 3, L0747: 3, L0766: 2, H0659: 2, L0779: 2,

HODJB51	1004643	343	201 - 272	2518		L0777: 2, H0170: 1, S0360: 1, H0550: 1, H0023: 1, H0018: 1, H0641: 1, L0763: 1, L0769: 1, L0764: 1, L0803: 1, L0774: 1, L0655: 1, L0666: 1, H0648: 1 and H0436: 1.
HODEC38	1004648	344	2 - 208	2519	Ser-1 to Asp-19.	H0328: 1 and H0615: 1. L0764: 9, L0747: 6, L0766: 5, L0070: 5, L0748: 4, L0662: 3, L0749: 3, L0758: 3, L0759: 3, L0601: 3, H0574: 2, H0014: 2, H0615: 2, L0529: 2, L0666: 2, L0596: 2, H0265: 1, H0556: 1, H0583: 1, S0356: 1, S0360: 1, S0222: 1, H0486: 1, L0021: 1, H0581: 1, H0309: 1, H0545: 1, H0172: 1, H0188: 1, S0214: 1, H0252: 1, H0328: 1, H0674: 1, L0456: 1, H0625: 1, H0561: 1, S0426: 1, L0763: 1, L0769: 1, L0646: 1,

HODIQ24	1004660	345	3 - 236	2520	Arg-6 to Gly-11, Pro-18 to Glu-33, Ala-48 to Asp-68.	L0641: 1, L0645: 1, L0773: 1, L0768: 1, L0794: 1, L0551: 1, L0774: 1, L0775: 1, L0375: 1, L0378: 1, L0805: 1, L0655: 1, L0658: 1, L0659: 1, L0783: 1, L0532: 1, L0664: 1, H0521: 1, L0611: 1, S0432: 1, L0757: 1, L0589: 1, L0591: 1, L0599: 1, H0543: 1 and H0423: 1. L0794: 7, L0776: 4, L0740: 4, H0046: 3, L0805: 3, L0749: 3, H0624: 2, S0282: 2, L0157: 2, H0615: 2, L0663: 2, H0519: 2, L0748: 2, L0747: 2, L0777: 2, L0731: 2, H0686: 1, H0294: 1, H0486: 1, H0349: 1, H0009: 1, H0178: 1, H0050: 1, L0471: 1, H0328: 1, H0030: 1, H0412: 1, S0448: 1, L0764: 1, L0662: 1, L0807: 1, L0789: 1, L0792: 1, L0666: 1,

| HVVDD56 | 1004887 | 346 | 399 - 1400 | 2521 | Asn-32 to Glu-42, Leu-59 to Ala-66, Leu-73 to Arg-78, Leu-100 to Leu-110, Asp-155 to Thr-161, Thr-166 to Cys-173, Leu-214 to Ser-220, Ser-227 to Lys-232, Arg-236 to Gly-242, Phe-257 to Asp-264, Arg-309 to Ala-314. | H0581: 8, H0422: 7, L0766: 5, H0521: 4, L0588: 4, S0360: 3, H0486: 3, L0663: 3, H0436: 3, S0434: 3, H0583: 2, S0298: 2, S0354: 2, S0408: 2, H0046: 2, H0622: 2, H0090: 2, H0494: 2, L0761: 2, L0655: 2, L0659: 2, H0518: 2, H0522: 2, H0696: 2, L0777: 2, H0445: 2, H0423: 2, H0556: 1, S0430: 1, H0650: 1, H0657: 1, S0116: 1, S0356: 1, S0376: 1, H0580: 1, H0586: 1, L0586: 1, H0250: 1, L0021: 1, T0071: 1, H0596: 1, H0644: 1, H0264: 1, H0412: 1, H0561: 1, S0440: 1, H0641: 1, H0649: 1, L0770: 1, L5565: 1, L0372: 1, L0642: 1, | S0126: 1, H0670: 1, L0742: 1, L0743: 1, L0754: 1, L0779: 1, L0780: 1 and L0759: 1. |

HTHDV01	1004950	347	3 - 1292	2522	His-1 to Arg-20, Ala-30 to Ala-38, Ala-58 to Ser-69, Ser-138 to Pro-143, Leu-182 to Lys-198, Cys-204 to Thr-212, Ala-217 to Leu-229, Leu-237 to Lys-242, Asn-295 to Ser-302, Leu-314 to Phe-319, Ser-327 to Ser-338, Arg-409 to Ser-423.	H0696: 37, H0692: 26, H0650: 22, H0271: 21, S0434: 21, S0406: 17, H0656: 13, S0360: 13, H0411: 12, H0710: 12, S0280: 11, H0416: 11, H0553: 11, L0666: 11, H0486: 10, H0581: 10, H0555: 10, L0751: 10, H0713: 9, S0354: 9, L0662: 9, S0126: 9, H0717: 8, S0358: 8, L0774: 8, H0144: 8, S0374: 8, H0670: 8, L0745: 8, H0436: 7, L0748: 7, H0013: 6, L0427: 6, H0596: 6, H0644: 6, H0674: 6, L0659: 6, L0754: 6, L0387: 1, L0381: 1, L0775: 1, L0527: 1, L0664: 1, L0665: 1, S0216: 1, S0374: 1, L0565: 1, H0684: 1, H0435: 1, H0659: 1, H0648: 1, H0672: 1, H0710: 1, H0555: 1, L0748: 1, L0754: 1, L0749: 1, L0756: 1, H0595: 1 and H0543: 1.	14q24.3	104311, 109150, 182600, 245200, 601208

S0442: 5, H0580: 5,
H0156: 5, H0457: 5,
H0615: 5, H0622: 5,
H0063: 5, L0776: 5,
H0648: 5, H0263: 4,
H0179: 4, H0031: 4,
H0163: 4, L0764: 4,
L0649: 4, L0438: 4,
H0672: 4, L0439: 4,
H0677: 4, L0600: 4,
S0116: 3, S0444: 3,
H0619: 3, H0421: 3,
H0032: 3, S0438: 3,
S0440: 3, L0598: 3,
L0803: 3, L0809: 3,
L0532: 3, L0664: 3,
L0665: 3, H0689: 3,
S0378: 3, L0756: 3,
H0624: 2, H0556: 2,
H0402: 2, S0356: 2,
S0376: 2, S0046: 2,
S0222: 2, H0574: 2,
H0635: 2, H0575: 2,
H0036: 2, H0597: 2,
H0544: 2, H0046: 2,
H0123: 2, H0050: 2,
H0014: 2, H0201: 2,
T0010: 2, H0355: 2,
H0135: 2, T0004: 2,
S0344: 2, S0002: 2,

L0769: 2, L0372: 2, L0375: 2, L0653: 2, S0328: 2, H0539: 2, L0602: 2, H0521: 2, H0479: 2, L0743: 2, L0744: 2, L0746: 2, L0749: 2, L0779: 2, L0758: 2, S0436: 2, H0265: 1, H0685: 1, H0716: 1, T0087: 1, S6024: 1, S0430: 1, S0212: 1, H0669: 1, H0662: 1, H0638: 1, S0418: 1, L0005: 1, H0645: 1, H0351: 1, S6022: 1, H0369: 1, H0550: 1, H0441: 1, H0409: 1, H0600: 1, H0586: 1, H0587: 1, L0586: 1, H0244: 1, H0098: 1, L0022: 1, H0590: 1, H0309: 1, H0231: 1, H0150: 1, H0081: 1, L0471: 1, H0620: 1, H0024: 1, H0373: 1, L0163: 1, H0060: 1, H0688: 1, H0428: 1, H0039: 1, T0023: 1, L0142: 1, H0168: 1, H0169: 1,

| HVVDJ95 | 1005153 | 348 | 203 - 400 | 2523 | Pro-52 to Gly-58. | H0068: 1, H0038: 1,
H0155: 1, S0294: 1,
H0509: 1, H0131: 1,
L0762: 1, L0763: 1,
L0371: 1, L0638: 1,
L5565: 1, L0373: 1,
L0771: 1, L0768: 1,
L0364: 1, L0650: 1,
L0632: 1, L0523: 1,
L0655: 1, L0783: 1,
L0530: 1, L0647: 1,
L0663: 1, H0725: 1,
H0693: 1, L0352: 1,
H0690: 1, H0660: 1,
S0330: 1, S0380: 1,
H0709: 1, S0350: 1,
S0190: 1, S0404: 1,
H0478: 1, L0611: 1,
S3014: 1, S0027: 1,
S0206: 1, L0740: 1,
L0780: 1, L0731: 1,
S0260: 1, H0445: 1,
H0343: 1, L0599: 1,
L0361: 1, S0462: 1 and
S0456: 1. | 9q34 | 125270,
125270,
128100,
137350,
191100, |
| | | | | | | H0052: 1, H0012: 1,
H0271: 1, H0165: 1,
H0672: 1, H0521: 1,
L0439: 1, L0754: 1 and
H0423: 1. | | |

HODIY29	1005236	349	2115 - 1081	2524	Lys-1 to Phe-58, Pro-62 to Ser-105, Arg-118 to Asp-154, Pro-181 to Pro-187, Ala-215 to Asp-221, Pro-228 to Phe-240, Pro-264 to Ser-269, Ser-281 to Asp-291, Glu-301 to Phe-314.	L0748: 11, H0591: 2, L0779: 2, L0758: 2, H0624: 1, S0342: 1, S0045: 1, H0351: 1, H0427: 1, S0010: 1, H0052: 1, H0251: 1, N0006: 1, L0471: 1, H0266: 1, H0615: 1, H0622: 1, H0031: 1, H0090: 1, H0038: 1, L0769: 1, L0761: 1, L0766: 1, L0774: 1, L0657: 1, H0593: 1, H0521: 1, H0555: 1, L0744: 1, L0747: 1, L0750: 1 and L0777: 1.	21q22.1-q22.2	215700, 223360, 268900, 601850 147450, 176261, 253270, 601399
HOELP29	1005359	350	3 - 1013	2525	Lys-5 to Leu-10, Ser-20 to Glu-30, Leu-32 to Thr-37.	L0755: 11, L0766: 4, L0747: 4, L0764: 2, L0663: 2, H0556: 1, H0686: 1, S0444: 1, S0408: 1, H0580: 1, H0722: 1, H0290: 1, L0483: 1, H0165: 1, H0494: 1, H0132: 1, S0150: 1, S0208: 1, L0772: 1, L0768: 1,	1p32	120950, 120960, 138140, 178300, 187040, 600101, 600650, 600650, 600722, 600722

Clone Name	Clone ID						Accession Nos.
HWLFG04	1005384	351	2 - 1015	2526	Lys-9 to Thr-17, Lys-41 to Asn-55, Leu-57 to Asn-65, Val-67 to Asn-79, Ile-122 to Cys-132, Leu-135 to Ala-147, Gln-175 to Ala-197, Pro-227 to Thr-251, Pro-253 to Gly-264, Pro-288 to Glu-296, Gln-312 to Val-321.	7p15 S0358: 3, H0539: 3, L0659: 2, L0664: 2, S0354: 1, S0360: 1, S0408: 1, S0007: 1, H0318: 1, S0474: 1, H0596: 1, H0266: 1, H0412: 1, L0369: 1, L0640: 1, L0656: 1, L0666: 1, L0663: 1, H0144: 1, H0648: 1, S0044: 1, L0755: 1, L0588: 1, L0592: 1, L0608: 1, L0362: 1 and H0423: 1. L0784: 1, L0805: 1, H0547: 1, S0126: 1, H0659: 1, H0660: 1, H0627: 1, L0749: 1, L0779: 1, L0731: 1, L0757: 1 and H0668: 1.	138079, 138079, 139191, 142959, 153880, 180104, 600994, 601649
HYAAC49	1005511	352	2 - 781	2527		AR089: 5, AR096: 5, AR053: 4, AR060: 3, AR039: 3, AR033: 3, AR055: 2, AR104: 2, AR061: 1 H0583: 1 and H0036: 1.	
HCOOA71	1005843	353	68 - 205	2528	Thr-34 to Ser-46.	L0777: 8, L0809: 4, L0749: 4, H0038: 3, L0769: 3, L0783: 3,	

HOUFB45	1005974	354	879 - 478	2529			22q11.23	123620, 600850
				Ser-1 to Ser-7, Gly-21 to Arg-37.	L0740: 3, H0581: 2, H0546: 2, H0024: 2, L0521: 2, L0375: 2, H0670: 2, L0748: 2, L0758: 2, L0759: 2, H0171: 1, S0360: 1, H0351: 1, L0622: 1, H0052: 1, H0424: 1, H0617: 1, H0087: 1, H0059: 1, H0494: 1, H0646: 1, L0369: 1, L0763: 1, L0766: 1, L0776: 1, L0657: 1, L0789: 1, L0666: 1, L0663: 1, L0565: 1, H0658: 1, L0439: 1, L0750: 1, L0753: 1 and L0757: 1.	L0665: 4, L0779: 3, L0646: 2, L0800: 2, L0650: 2, L0659: 2, S0040: 1, S0442: 1, S0045: 1, H0619: 1, H0052: 1, H0024: 1, S0051: 1, H0604: 1, H0030: 1, H0135: 1, L0639: 1, L0761: 1, L0372: 1, L0641: 1, L0771: 1, L0766: 1, L0803: 1, L0776: 1.		

HUSJI14	1006018	355	399 - 2081	2530	Lys-5 to Met-10, Lys-79 to Ser-86, Ser-145 to Leu-154.	L0439: 13, L0777: 9, L0717: 8, L0748: 6, L0659: 5, L0747: 4, H0318: 3, L0665: 3, L0779: 3, H0170: 2, H0212: 2, L0455: 2, L0764: 2, L0662: 2, L0768: 2, L0766: 2, L0775: 2, L0655: 2, H0520: 2, H0672: 2, L0746: 2, L0755: 2, L0758: 2, L0759: 2, L0595: 2, H0624: 1, H0171: 1, H0685: 1, H0661: 1, H0402: 1, S0046: 1, H0333: 1, T0109: 1, H0013: 1, S0280: 1, L0021: 1, H0590: 1, H0581: 1, H0374: 1, H0596: 1, L0471: 1, H0014: 1, S0051: 1, S0003: 1, L0657: 1, L0656: 1, L0783: 1, L0791: 1, L0666: 1, L0663: 1, L0438: 1, H0547: 1, H0672: 1, H0436: 1, L0748: 1, L0747: 1, L0749: 1, L0777: 1, L0758: 1 and L0608: 1.

HMCDB21	1006055	356	411 - 509	2531	Asn-1 to Arg-13.	H0328: 1, H0617: 1, H0040: 1, H0412: 1, H0494: 1, H0641: 1, L0761: 1, L0645: 1, L0773: 1, L0521: 1, L0375: 1, L0651: 1, L0805: 1, L0776: 1, L0526: 1, L0783: 1, L0809: 1, L0789: 1, L0666: 1, L0664: 1, H0701: 1, L0352: 1, H0547: 1, H0658: 1, H0670: 1, H0648: 1, H0651: 1, H0436: 1, L0740: 1, L0754: 1, L0752: 1, L0757: 1, L0591: 1, L0592: 1 and H0293: 1.
						L0794: 2, L0776: 2, L0745: 2, L0758: 2, S0260: 2, S0142: 1, L0500: 1 and H0648: 1.
HSDEY08	1006142	357	594 - 1136	2532	Leu-25 to Phe-35, Lys-48 to Asp-54, Arg-62 to Phe-72, Tyr-92 to Leu-99.	L0534: 10, L0747: 10, L0769: 8, L0751: 7, L0592: 5, H0545: 4, L0770: 4, L0761: 4, L0438: 4, H0599: 3, T0010: 3, H0553: 3, L0646: 3, H0547: 3, S0028: 3, H0101: 2,

H0546: 2, H0050: 2,
L0662: 2, L0794: 2,
L0774: 2, L0378: 2,
S0380: 2, L0752: 2,
L0755: 2, L0758: 2,
S0436: 2, L0603: 2,
S0040: 1, H0295: 1,
H0255: 1, S0418: 1,
S0444: 1, S0360: 1,
S0408: 1, H0580: 1,
H0559: 1, H0156: 1,
H0575: 1, H0706: 1,
H0253: 1, H0457: 1,
H0562: 1, H0566: 1,
H0081: 1, L0471: 1,
H0373: 1, H0083: 1,
S6028: 1, H0266: 1,
H0271: 1, S0250: 1,
H0428: 1, H0617: 1,
H0124: 1, H0708: 1,
S0366: 1, H0135: 1,
H0087: 1, H0551: 1,
H0264: 1, H0488: 1,
H0623: 1, T0041: 1,
H0429: 1, H0561: 1,
H0132: 1, H0130: 1,
L0796: 1, L0639: 1,
L0667: 1, L0764: 1,
L0765: 1, L0768: 1,
L0651: 1, L0805: 1,

| HOOJT92 | 1006215 | 358 | 41 - 172 | 2533 | Ser-9 to Glu-18, Asp-22 to Asp-30. | L0776: 1, L0636: 1, L0809: 1, L0791: 1, L4501: 1, L0666: 1, L0663: 1, L0665: 1, S0428: 1, H0693: 1, H0520: 1, H0519: 1, H0690: 1, H0684: 1, H0670: 1, H0660: 1, H0648: 1, H0521: 1, H0134: 1, H0436: 1, L0612: 1, S0037: 1, L0742: 1, L0743: 1, L0744: 1, L0748: 1, L0439: 1, L0777: 1, L0780: 1, L0757: 1, L0759: 1, S0031: 1, S0434: 1 and S0192: 1. | L0748: 20, L0731: 10, L0776: 7, L0766: 6, L0754: 6, L0747: 6, L0752: 6, L0740: 5, L0755: 5, L0759: 5, H0550: 4, L0769: 4, L0438: 4, H0545: 3, H0051: 3, H0135: 3, L0662: 3, L0809: 3, L0666: 3, H0624: 2, H0685: 2, L0005: 2, H0645: 2, H0013: 2, S0346: 2, H0318: 2, |

H0597: 2, H0050: 2,
H0014: 2, H0553: 2,
H0040: 2, H0616: 2,
H0551: 2, S0344: 2,
S0002: 2, L0761: 2,
L0771: 2, L0650: 2,
L0806: 2, L0659: 2,
H0547: 2, H0539: 2,
H0696: 2, L0439: 2,
L0749: 2, L0756: 2,
L0605: 2, L0591: 2,
L0581: 2, L0362: 2,
H0171: 1, H0556: 1,
S0134: 1, S0218: 1,
H0583: 1, L0427: 1,
S0358: 1, H0580: 1,
H0208: 1, H0619: 1,
S0278: 1, H0369: 1,
H0549: 1, H0431: 1,
H0370: 1, H0333: 1,
H0427: 1, H0599: 1,
T0082: 1, H0421: 1,
H0052: 1, H0457: 1,
L0157: 1, H0024: 1,
H0687: 1, H0290: 1,
H0252: 1, T0006: 1,
H0644: 1, L0143: 1,
H0111: 1, H0165: 1,
H0674: 1, H0591: 1,
H0634: 1, H0488: 1,

| HNORE03 | 1006250 | 359 | 1 - 669 | 2534 | Lys-54 to Asp-62, Pro-102 to Gly-109, Gln-121 to Thr-134, Lys-159 to Leu-165, Thr-190 to Asn-196. | H0623: 1, H0059: 1, S0112: 1, T0042: 1, H0561: 1, H0646: 1, H0652: 1, H0538: 1, L0763: 1, L0765: 1, L0648: 1, L0768: 1, L0803: 1, L0775: 1, L0375: 1, L0783: 1, L0530: 1, L0367: 1, L0663: 1, H0144: 1, H0519: 1, H0682: 1, H0659: 1, H0658: 1, H0648: 1, H0651: 1, S0378: 1, H0521: 1, L0611: 1, S0028: 1, L0750: 1, L0779: 1, L0777: 1, L0757: 1, L0758: 1, S0196: 1, H0542: 1, H0423: 1, H0422: 1, H0677: 1 and H0506: 1. | L0770: 2, L0662: 2, L4501: 2, H0521: 2, L0731: 2, L0758: 2, H0351: 1, S0222: 1, H0587: 1, H0687: 1, H0169: 1, H0412: 1, L0805: 1, L0666: 1, H0723: 1, H0691: 1, H0520: 1, H0659: 1, |

HPCTS21	1006317	360	117 - 1754	2535	Arg-8 to Ser-35, Leu-40 to Cys-77.	S0330: 1, L0755: 1, L0759: 1, H0707: 1, L0608: 1, H0543: 1 and H0423: 1. L0766: 6, L0754: 6, L0779: 4, H0486: 3, L0665: 3, S0440: 2, L0756: 2, L0731: 2, L0758: 2, H0624: 1, H0717: 1, H0738: 1, H0125: 1, S0376: 1, S0360: 1, H0581: 1, L0157: 1, L0471: 1, S0250: 1, S0003: 1, H0316: 1, S0422: 1, L0769: 1, L0387: 1, L0803: 1, L0805: 1, L0776: 1, L0606: 1, L0659: 1, L0518: 1, L0793: 1, L0664: 1, H0689: 1, H0659: 1, H0658: 1, H0672: 1, S0328: 1, S0136: 1, H0134: 1, H0436: 1, H0732: 1, L0751: 1, L0777: 1, L0755: 1, L0759: 1, S0436: 1, H0422: 1 and S0412: 1.
HFATL31	1006399	361	2 - 508	2536	Leu-17 to Arg-37, Pro-50 to Ser-77,	H0052: 2, H0620: 2, H0729: 1, S0300: 1,

					Arg-85 to Gln-91, Glu-148 to Glu-153.	H0462: 1, H0550: 1, H0441: 1, H0333: 1, H0618: 1, S0010: 1, H0309: 1, H0032: 1, H0673: 1, H0124: 1, S0366: 1, S0036: 1, L0637: 1, S3014: 1, L0742: 1, L0743: 1, L0740: 1, L0750: 1, L0753: 1 and L0758: 1.
HE2JE77	1006445	362	2 - 331	2537	Gly-67 to Leu-76, Cys-83 to Arg-89, Glu-96 to Asn-102.	L0521: 2, H0624: 1, H0539: 1 and H0555: 1.
HCBNX87	1006470	363	948 - 529	2538	Gly-16 to Asn-31, Ala-36 to Ser-41, Glu-93 to Pro-100, Lys-135 to Gln-140.	H0693: 44, L0604: 5, S0366: 4, L0805: 4, H0637: 3, L0766: 3, H0672: 3, H0549: 2, H0271: 2, L0777: 2, H0661: 1, H0580: 1, H0173: 1, H0620: 1, H0428: 1, S0364: 1, L0641: 1, L0644: 1, L0655: 1, L0809: 1, L0791: 1, L0666: 1, L0663: 1, T0068: 1, H0576: 1, L0780: 1, L0731: 1, L0584: 1 and H0543: 1.
HNTDJ68	1006483	364	3 - 653	2539	Val-9 to Ser-15, Phe-34 to Tyr-41,	AR052: 6, AR053: 5, AR055: 3, AR089: 3,

					Glu-59 to Glu-75, Leu-94 to Asn-99, Asp-142 to Cys-152, Lys-166 to Leu-172, Lys-188 to Asn-194, Pro-212 to Ala-217.	AR033: 3, AR096: 3, AR061: 2, AR039: 2, AR060: 2, AR104: 2 H0615: 3, H0393: 1, H0441: 1, T0109: 1, H0318: 1, H0570: 1, H0566: 1, H0551: 1, H0625: 1, L0761: 1, L0766: 1, L0803: 1, L0784: 1, H0144: 1, H0539: 1, H0696: 1, L0744: 1, L0740: 1 and L0777: 1.
HTRAA05	1006512	365	19 - 327	2540	Pro-11 to Phe-16, Ala-59 to Asp-66.	T0002: 1, H0164: 1 and L0761: 1.
HMTAL96	1006635	366	1767 - 1321	2541	Ala-9 to Leu-20, Arg-70 to Thr-75, Pro-129 to Gly-139.	L0747: 6, L0754: 4, L0752: 4, S0280: 3, H0615: 3, L0766: 3, L0803: 3, L0805: 3, L0809: 3, L0740: 3, L0750: 3, L0731: 3, H0050: 2, L0471: 2, H0628: 2, H0032: 2, S0426: 2, H0648: 2, S0027: 2, L0779: 2, L0757: 2, L0759: 2, L0485: 2, H0656: 1, S0029: 1, S0356: 1, S0358: 1, S0376: 1, S0408: 1, H0580: 1,

| HDTJP21 | 1006858 | 367 | 55 - 246 | 2542 | Ile-3 to Ile-10, Pro-40 to Val-64. | S0046: 1, H0645: 1, S0222: 1, H0592: 1, H0486: 1, H0427: 1, H0042: 1, H0036: 1, H0004: 1, H0581: 1, H0434: 1, H0052: 1, T0110: 1, H0545: 1, S0051: 1, H0375: 1, H0328: 1, L0483: 1, H0030: 1, H0644: 1, H0090: 1, H0551: 1, H0100: 1, H0633: 1, S0344: 1, S0002: 1, L0761: 1, L0764: 1, L0521: 1, L0363: 1, L0774: 1, L0775: 1, L0558: 1, L0659: 1, L0782: 1, L0787: 1, H0691: 1, H0658: 1, H0651: 1, S0330: 1, H0539: 1, S0380: 1, H0518: 1, S0013: 1, H0555: 1, S3014: 1, L0748: 1, L0439: 1, L0749: 1, L0758: 1, S0031: 1, L0599: 1, L0362: 1, S0196: 1 and H0422: 1. | H0615: 2 and H0486: 1. |

Gene ID	cDNA Clone ID	NT SEQ ID NO	ORF region (nt)	AA SEQ ID NO	Amino acid regions	cDNA library / clone counts	Chromosome	OMIM
HISEQ81	1006943	368	298 - 2	2543	Glu-8 to Tyr-18, Asn-29 to Lys-35, Lys-62 to Ile-67, His-88 to Pro-99.	H0539: 2		
HODFH02	1006953	369	334 - 393	2544		H0615: 3	14q21	182600, 232700, 602086, 602616
HOCPP18	1007230	370	290 - 571	2545	Pro-11 to Phe-19, Phe-41 to Ser-54.	L0748: 3, L0471: 2, L0766: 2, L0752: 2, S0358: 1, H0357: 1, H0486: 1, H0270: 1, H0575: 1, S0182: 1, S0049: 1, T0067: 1, H0412: 1, H0560: 1, S0144: 1, S0326: 1, H0538: 1, S0422: 1, S0426: 1, L0764: 1, H0660: 1, H0521: 1, S0432: 1, L0740: 1, L0751: 1, L0754: 1, L0745: 1, L0747: 1, L0777: 1, L0731: 1, H0445: 1, L0608: 1 and H0667: 1.		
HODFP91	1007941	371	3 - 1016	2546	Glu-10 to Ser-19, His-41 to Lys-50, Glu-80 to Leu-86, Ser-142 to Leu-147, Lys-153 to Lys-161, Tyr-167 to Leu-175, Ser-177 to Asn-188, Gln-199 to Arg-228,	L0777: 4, L0517: 3, L0740: 3, L0599: 3, S0354: 2, H0615: 2, L0521: 2, L0663: 2, L0779: 2, L0591: 2, T0002: 1, H0013: 1, H0427: 1, H0553: 1, H0038: 1, L0520: 1,		

Clone	ID	No.	Range	SEQ ID	Residue regions	Values
H6EDU06	1007976	372	18 - 449	2547	Gln-257 to Glu-262, Asp-274 to Ser-279.	L0769: 1, L0638: 1, L0518: 1, L0809: 1, H0547: 1, L0439: 1, L0747: 1 and H0444: 1.
HPCRD26	1008013	373	81 - 1334	2548	Pro-6 to Leu-11, Glu-90 to Asn-95, Val-102 to Val-107, Ala-120 to Glu-126, Ala-132 to Thr-144.	H0686: 1, H0559: 1 and S0028: 1.
					Gly-8 to Asp-16, Gly-71 to Pro-77, Met-98 to Tyr-105, Lys-129 to Arg-146, Gln-177 to Val-186, Gln-192 to Trp-216, Pro-223 to Asp-237, Ala-251 to Ser-258, Arg-287 to Arg-292, Met-323 to Gly-331.	AR053: 1, AR104: 1, AR061: 1, AR033: 1, AR060: 0, AR096: 0, AR039: 0, AR089: 0, AR052: 0, AR055: 0
HSIEH63	1008027	374	3 - 554	2549	His-1 to Pro-7, Lys-43 to Asp-59, Thr-122 to Tyr-133, Gly-152 to Thr-160.	AR039: 9, AR089: 4, AR060: 4, AR055: 4, AR061: 3, AR033: 3, AR104: 3, AR053: 3, AR096: 1 S0354: 2, S0360: 1, H0036: 1, H0596: 1 and S0374: 1.
HPASD51	1008071	375	3 - 752	2550	Glu-26 to Gly-31, Gly-33 to Trp-40, Ala-169 to Glu-175.	AR052: 51, AR061: 46, AR033: 35, AR053: 46, AR104: 28, AR055: 26,

					Gly-199 to Gly-204.	25, AR096: 25, AR060: 24, AR089: 23, AR039: 21 S0380: 5, L0748: 4, H0648: 3, S0378: 3, L0752: 3, L0766: 2, L0803: 2, L0665: 2, L0750: 2, H0661: 1, H0461: 1, H0270: 1, H0039: 1, H0622: 1, L0761: 1, L0657: 1, L0532: 1, L0666: 1, H0689: 1, S0330: 1, L0749: 1 and L0777: 1.
HCOQH27	1008154	376	95 - 1315	2551	Gly-28 to Pro-34, Lys-39 to Glu-47, Ala-63 to Cys-68, Asn-101 to Gly-111, Leu-144 to His-161, Asp-234 to Trp-245, Phe-396 to Ser-407.	12 L0803: 5, L0439: 5, L0750: 5, L0774: 4, H0657: 3, H0046: 3, H0687: 3, H0031: 3, L0773: 3, L0794: 3, L0776: 3, L0655: 3, L0657: 3, L0790: 3, L0438: 3, L0747: 3, L0731: 3, H0656: 2, T0042: 2, L0761: 2, L0764: 2, L0654: 2, S0152: 2, L0751: 2, L0749: 2, L0777: 2, L0759: 2, L0592: 2, H0543: 2, S6024: 1, H0341: 1, S0212: 1,

S0420: 1, S0358: 1,
S0360: 1, S0410: 1,
H0637: 1, H0208: 1,
S0045: 1, S0046: 1,
H0393: 1, S0278: 1,
H0369: 1, H0441: 1,
H0357: 1, H0613: 1,
T0039: 1, H0013: 1,
H0427: 1, H0575: 1,
S0010: 1, S0346: 1,
H0209: 1, H0123: 1,
H0024: 1, S0051: 1,
T0010: 1, H0061: 1,
H0266: 1, H0553: 1,
H0598: 1, S0036: 1,
H0038: 1, H0551: 1,
H0264: 1, H0059: 1,
L0351: 1, T0041: 1,
L0475: 1, L0762: 1,
L0631: 1, L0638: 1,
L0643: 1, L0766: 1,
L0804: 1, L0775: 1,
L0375: 1, L0805: 1,
L0791: 1, L0663: 1,
S0126: 1, H0670: 1,
H0660: 1, H0672: 1,
H0521: 1, H0522: 1,
H0696: 1, H0704: 1,
S0044: 1, L0756: 1,
L0757: 1, L0758: 1,

| HNTBU30 | 1008177 | 377 | 2 - 2737 | 2552 | Leu-40 to Val-46, Gly-83 to Gln-89, Lys-123 to Gly-129. | L0770: 7, L0777: 7, S0406: 5, L0439: 5, L0758: 4, H0659: 3, H0717: 2, H0494: 2, L0598: 2, L0764: 2, L0655: 2, H0547: 2, L0521: 2, H0478: 2, L0748: 2, L0731: 2, L0595: 2, L0411: 1, H0657: 1, H0656: 1, H0663: 1, S0358: 1, H0329: 1, H0645: 1, H0639: 1, H0415: 1, H0455: 1, H0156: 1, L0021: 1, H0052: 1, T0110: 1, L0471: 1, H0687: 1, S0250: 1, H0428: 1, H0553: 1, H0166: 1, H0598: 1, H0040: 1, H0551: 1, S0386: 1, H0560: 1, H0509: 1, H0538: 1, UNKWN: 1, L0763: 1, L0638: 1, L0646: 1, L0662: 1, L0364: 1, L0803: 1, L0659: 1, | L0588: 1, L0591: 1, L0485: 1, H0542: 1, H0423: 1, H0422: 1 and H0293: 1. |

HCOPZ14	1008179	378	763 - 1083	2553	H0556: 3, S0474: 2, H0622: 2, H0634: 2, S0434: 2, H0265: 1, H0254: 1, H0663: 1, S0046: 1, H0602: 1, H0586: 1, H0069: 1, H0575: 1, H0581: 1, H0251: 1, S0051: 1, H0617: 1, H0494: 1, H0670: 1, S0152: 1, L0748: 1 and L0603: 1.	L0636: 1, L0783: 1, L0666: 1, H0520: 1, H0519: 1, S0122: 1, H0435: 1, H0518: 1, H0694: 1, H0555: 1, H0436: 1, L0747: 1, L0749: 1, L0779: 1, L0752: 1, L0755: 1, S0031: 1, L0485: 1, H0422: 1 and H0506: 1.	1q32-q41	114208, 114208, 119300, 120620, 120620, 120920, 134370, 134370, 134370, 134580, 145260, 150310, 150310, 179820, 191045, 276901, 600105, 600332, 600759, 601494,